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This study provides FAMC with a strong foundation for designing a regional UM Program that can be applied to the other high CHAMPUS costs within FAMC's geographical areas of responsibilities. FAMC's graduate medical education (GME) mission and the importance of maintaining its vital patient referral base are also considered in this study.

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UTILIZATION MANAGEMENT OF ORTHOPEDIC SERVICES

BY FITZSIMONS ARMY MEDICAL CENTER

AND

EVANS ARMY COMMUNITY HOSPITAL

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Lieutenant Colonel Randell G. Flood, MS

July 1993

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Utilization Management

i

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Abstract

The 1992 fiscal year Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) orthopedic costs for Fitzsimons Army Medical Center (FAMC), \$902,344, and Evans Army Community Hospital (EACH), Fort Carson, \$1,804,590, represents an opportunity to significantly reduce these costs by establishing an effective orthopedic utilization management program for the Fitzsimons Army Health Service Region.

FAMC is a 437 bed, teaching hospital located in Aurora, Colorado. FAMC's geographical responsibility for coordinating and providing tertiary health care for Military Health Services System (MHSS) beneficiaries includes the Fitzsimons Army Health Service Region (12 States) and the Department of Defense (DoD) Region III (seven States).

With the development of the DoD Coordinated Care Program (CCP) and the U.S. Army Health Services Command's (HSC) Gateway To Care (GTC) program which implements CCP, FAMC's role as a teaching center and a regional tertiary military hospital has increased. Because of the obvious resource implications, the Utilization Management (UM) Program has become the most important element in the GTC Program.

This study involves designing an integrated UM Program for orthopedic services for Fitzsimons Army Medical Center and Evans Army Community Hospital, Fort Carson, Colorado. Since Evans Army Community Hospital is the designated DoD lead agent for the Colorado Springs Health Service Area, the coordination of orthopedic services between Evans Army Community Hospital and the U.S. Air Force Academy Hospital is incorporated in this study.

The use of prospective, concurrent, and retrospective reviews, case management, discharge planning, and other UM tools which have been widely utilized in the civilian sector are reviewed. Staffing, workload, NonAvailability Statements (NAS's), supplemental care costs, partnership agreements, referral system, and UM practices as they pertain to orthopedic services are analyzed.

This study provides FAMC with a strong foundation for designing a regional UM Program that can be applied to the other high CHAMPUS costs within FAMC's geographical areas of responsibilities. FAMC's graduate medical education (GME) mission and the importance of maintaining its vital patient referral base are also considered in this study.

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I. Introduction

The Assistant Secretary of Defense for Health Affairs (ASD (HA)) issued policy guidelines for the Coordinated Care Program (CCP) on 14 August 1992. The CCP goals as stated in the policy guidelines are to accomplish the medical mission better by:

1. Improving beneficiary access to health care services.
2. Controlling health care costs.
3. Ensuring quality care to all MHSS beneficiaries.

FAMC's higher headquarters, the U.S. Army Health Services Command (HSC), is implementing CCP with a program titled Gateway To Care (GTC) for its hospitals. Commanders of Army hospitals are reorganizing their local health care delivery systems or establishing Preferred Provider Organizations (PPOs) with civilian facilities to achieve the CCP goals. There are four Army hospitals and seven Air Force hospitals in the DoD Region III, which are the primary referral facilities to FAMC.

In the HSC Commanding General's (CG) analysis of the fiscal year (FY) 1993-1995 budget, residual shortfalls of \$173,000,000 in FY 94 and \$178,000,000 in FY 95 are predicted even after factoring in the decreased beneficiary population (1992). These anticipated shortfalls along with the newly established capitated budgeting model for HSC's hospitals, present a significant challenge for Army hospitals. The need for prudent fiscal management of health care resources and an effective UM Program has never been more important for HSC's hospitals! In September 1992, the HSC Commander stressed that Army hospitals must look for innovative ways to maximize savings and modify utilization management behavior (Memorandum, 1992).

The UM program of GTC is one of the most important elements that will allow the Army Medical Department (AMEDD) to achieve the CCP goals of increasing access, controlling costs, and ensuring quality. Since Army hospital Commanders have the responsibility of managing their local resources and establishing PPOs, the need for an integrated utilization management program is essential to efficiently coordinate health care resources within their health service area.

Conditions Which Prompted the Study

FAMC's UM Program is also affected by its mission of operating Graduate Medical Education (GME) programs. Viable GME programs are important in the recruitment and retention of top quality physicians and the designation of providing Specialized Treatment Services (STS's). The STS Program is a critical element of CCP and targets high-cost, high-technology health care services. Having an approved STS status by ASD (HA) is one method of providing quality health care within the current limited resource environment. FAMC has submitted an STS application to HSC for cardiovascular disease. FAMC will submit more STS applications.

FAMC's GME Program relies heavily on referred beneficiaries from hospitals within its geographical areas of responsibilities. Conversely, these same hospitals depend medically and financially on FAMC to provide tertiary care for their beneficiaries. Orthopedic costs should be analyzed to determine whether FAMC's referring hospitals can obtain orthopedic services at a lower cost locally or whether these patients should be referred to FAMC. An

integrated UM Program for Fitzsimons' Army Health Service Region can produce a "Win - Win" situation for FAMC and its referring hospitals. With approximately \$319,130,000 budgeted for FAMC and its four Army Community hospitals for FY 93, a small percent in cost avoidance achieved through utilization management represents a significant dollar amount.

In order for FAMC to meet the challenges of the rightsizing of the military, decreased resourcing, capitated budgeting and to achieve the goals of CCP, a viable regional UM Program will need to be developed.

Evans Army Community Hospital has focused primarily on its other high cost health care services such as mental health, pediatrics and cardiology. Therefore, targeting orthopedic costs offers a fruitful area for cost avoidance. Evans Army Community Hospital is also an excellent site to study the utilization of orthopedic resources due to its close proximity to FAMC, its large orthopedic workload, its experience as a Catchment Area Management (CAM) demonstration site, and its role as the DoD lead agent in the Colorado Springs Health Service Area. The Colorado Springs

Health Service Area includes Evans Army Community Hospital, the U.S. Air Force Academy Hospital, and the Peterson Air Force Health Clinic. This UM Program will also ensure essential continued patient referral base for FAMC's GME program. This Program can also serve as the foundation for an expanded and integrated UM Program for other health care services in the Fitzsimons Army Health Service Region and DoD Region III.

Statement of the Management Problem

The problem is Fitzsimons Army Medical Center must deliver continued quality orthopedic services in an environment of increasing constrained resources. In addition, FAMC must maintain a solid orthopedic referral base for its Graduate Medical Education program.

Review of the Literature

The high cost of health care in the United States is a major concern for our society. In 1992, Americans spent \$808 billion on health care which was 13% of the gross domestic product (Wechsler, 1992). The use of utilization management practices evolved to help

contain health care costs and to manage the redesigned insurance benefit plans which included financial incentives and penalties and copayments (Becker, 1990). Utilization management is the deliberate action to induce a more economical mix of treatment inputs without sacrificing health outcomes.

History of Civilian Utilization Management

Since military medical cost reimbursement and utilization management practices have normally followed the civilian sector, it is important to understand the history of civilian UM.

Beginning in the 1940's and for approximately the next two decades, health care expanded because more people were covered by health insurance. The Federal government then began an active role in establishing utilization management requirements to ensue its fiscal responsibility for the large number of people covered by the federal Medicare Program. In 1972, the Federal government established Professional Standards Review Organizations (PSROs) to provide UM services to Medicare patients. PSROs were terminated in 1982 because of their lack of effectiveness.

In 1983, Peer Review Organizations (PRO's), which were federally financed and regulated, replaced the ineffective PSROs. The establishment of PROs was the result of the passage of the Tax Equity and Fiscal Responsibility Act of 1982. The Prospective Payment System for Medicare patients was instituted in 1983 where payment was fixed and was based on a limited number of the diagnosis-related groups (DRGs). The responsibilities of PROs were to assure quality of services and eliminate unnecessary care. This was the start of the cost containment era (Relman, 1990).

PROs focused on reviewing inpatient high-volume elective procedures, hospital admissions, transfers and readmissions, and hospital stays that did not meet the DRG length of stay parameters (Bailett, 1991). This review was primarily conducted retrospectively. PROs denied payment of admissions that were not considered to be medically necessary.

In 1986, the Omnibus Budget Reconciliation Act expanded PRO activities to non-hospital settings such as ambulatory surgeries, nursing homes, home health care agencies, and HMOs.

In 1989, the Medicare fees of physicians were fixed by the passage of the Omnibus Budget Reconciliation Act by the Congressionally appointed Professional Practice Commission (PPC). This began the era of assessment and accountability (Relman, 1990).

History of Military Utilization Management

Military medicine has primarily enjoyed the freedom of establishing utilization management requirements without Federal government intervention. For the Army, utilization management requirements for its hospitals are described in Army Regulation (AR) 40-68, Quality Assurance Administration. Although AR 40-68 was updated in 1989, the UM requirements virtually remained the same as published in AR 40-66, Medical Records and Quality Assurance Administration, 1987.

Each military medical service had its own resourcing system. The AMEDD resourcing system was based on Medical Care Composite Units (MCCUs) for its hospitals. Emphasis was placed on inpatient census and very little credit was given for outpatient visits. Patients were admitted and kept longer than necessary.

A higher inpatient census with longer length of stays (LOSs) translated into more money, staffing, etc., to the hospitals. Additionally, Army hospitals were not responsible for CHAMPUS costs within their health service area. There was no incentive for Army hospitals to increase access for CHAMPUS beneficiaries. Army hospital Commanders, however, were concerned about supplemental care costs and managed patient referrals outside their hospitals. The incentive was to manage supplemental care because these costs were paid from the hospital's operating budget.

This military resourcing system did not reward efficient utilization of health care resources. With the increasing budget deficits and a desire to trim DoD spending, Congress focused its attention on military health spending and passed Public Law (PL) 99-661 in 1986 (Pratt, 1992). PL 99-661 mandated DoD to adopt a DRG-based system as the primary method for allocating resources to hospitals. The old method of resourcing hospitals which most Hospital Commanders and Administrators had learned to "game" during the past decades was no longer in effect. Resourcing by DRGs

was a significant change for the military. It was modeled from the civilian 1983 Prospective Payment System.

The Department of Defense, in an attempt to slow the rise in CHAMPUS health care costs, took action by patterning reimbursement after the 1983 Prospective Payment System. Effective October 1987, The Office of CHAMPUS (OCHAMPUS) implemented a DRG-based payment system for most admissions to short-term acute-care hospitals. A critical part of this payment system was the admission and quality review system conducted by a Professional Review Organization (PRO). The objectives of the PRO as delineated in the CHAMPUS Policy Manual, July 1992, are:

1. To ensure that the services provided are reasonable and necessary for the care or treatment of the particular patient and are provided at the appropriate level.
2. To ensure the medical necessity of individual hospital admissions for which DRG reimbursement is applicable.

3. To validate the diagnoses and procedural information submitted to the CHAMPUS contractor on individual claims which determines CHAMPUS reimbursement.

4. To identify patterns of inappropriate admissions, discharges, or other practices which indicate abuse, including an intent to circumvent the CHAMPUS DRG-based payment system.

DoD designed CCP in an attempt to become more competitive and to contain direct and CHAMPUS health care costs (1992). Utilization management is one of seven pillars of CCP. HSC issued guidance for UM to its Army hospitals as it pertained to GTC (1991).

Utilization Management

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defines Utilization Review (UR) as the examination and evaluation of the appropriateness of the utilization of resources of a hospital (1993). This is a very broad definition that allows hospitals to determine how they should conduct Utilization Management.

The JCAHO, however, applies standards to evaluate a hospital's performance in conducting utilization review. Since HSC requires its hospitals to apply for the JCAHO's accreditation survey, continuous compliance with JCAHO standards is a must.

FAMC earned full JCAHO accreditation in 1991 and will be surveyed by JCAHO in the summer of 1994. FAMC must ensure that JCAHO's intent for utilization review is met. This involves having established and implemented methods to identify utilization related problems in accordance with predetermined hospital criteria. At least the four following aspects should be considered as listed in the Accreditation Manual for Hospitals (1993):

1. The appropriateness and medical necessity of admissions.
2. Whether the level of care or service needed by the patient can be provided by the organization.
3. The clinical necessity of continued stay; and
4. The appropriateness, clinical necessity, and timeliness of support services provided directly by the hospital or through referral contacts.

Hospitals approach utilization management differently but utilize many of the same tools. A brief discussion of some of the more common UM tools is presented.

Preadmission Certification.

Preadmission certification occurs prior to the delivery of inpatient care. Preadmission certification is defined as "the prospective review and evaluation of proposed elective hospital admissions using acceptable medical criteria as the standard for determining the appropriateness of the site or level of care and certifying the length of stay required" (Scheffler, 1991). The requirement for preadmission certification is increasing rapidly. In 1987, 44% of enrollees in conventional health plans were in plans with preadmission certification (Welch, 1989). This was a 20% increase from the prior year and it was only 5% in 1984. Without preadmission certification, payment for inpatient services may be denied which results in the hospital not being reimbursed for the care rendered.

Preadmission Program.

Preadmission programs serve several utilization management purposes. The first purpose is almost identical to preadmission certification where patients are screened by some criteria such as severity of illness or intensity of service for the necessity of the admission (Harris, 1991). The criteria developed by InterQual for Medicare are widely utilized. A second purpose of a preadmission program is to centralize functions so they are more integrated and efficient. Functions may include centralized scheduling of medical tests, counseling and educating the patient on what to expect during the hospital stay, identifying high-risk patients during the initial assessment and testing, and the initiating of discharge planning (Noon, 1992).

Concurrent Review.

Concurrent review refers to the review performed while the patient is still in the hospital. Concurrent review offers several advantages for UM. One advantage of concurrent review is the opportunity for the hospital and attending physician to intervene so as to

benefit the patient whose care is being reviewed. Quality of care is improved whenever an adverse situation is prevented. Additionally, physicians may be able to avoid adverse incidents which would require reporting to the National Practitioner Data Bank. A drawback to concurrent review is medical documentation may not be complete which makes monitoring and evaluation difficult. Examples include missing pathology and radiology results, awaiting consultative reports, and unavailability of medical records at the time of the review.

Retrospective Review.

Retrospective review is performed after the patient is discharged. Retrospective review is still being conducted as the dominant UM approach. This is due to the historical focus of quality assurance programs on surgical outcome and medical records. It is more efficient than concurrent review because the medical record is usually complete. Retrospective review cannot correct inappropriate utilization while patients are hospitalized. Retrospective review findings are helpful in identifying patterns and trends in the inappropriate and inefficient use of resources.

Discharge Planning.

Discharge planning is assessing needs and obtaining or coordinating appropriate resources for patients as they move through the health care system (O'Hare, 1988). Discharge planning should take place at all levels of care. From an administrator's point of view, discharge planning is essential to the financial viability and survival of the organization since reimbursement is based on DRGs instead of actual costs. Discharge planning may also cause ethical dilemmas when patients' rights of self-determination and access to health care seem compromised when hospitals attempt to decrease their length of stays by discharging the patients quicker.

Discharge planning should begin with the patient's first contact with the health care system. Preadmission planning should be initiated in the physician's office and includes assessment, teaching, and referrals to other agencies prior to hospitalization. After the patient is hospitalized, discharge planning is performed by a multi-disciplinary team. Team members usually include representatives from nursing, social work, dietary, pastoral care, and the UM Coordinator.

Case Management.

Case management is another tool that is used in UM. Case management is defined as "a collection of organized activities to identify high-cost patients as early as possible, locate and assess alternative treatment methods, and manage health care benefits for these patients as cost effectively as possible" (Scheffer, 1991). Case managers communicate with discharge planners, alternative care providers, the patient/family, and the attending physician. The case manager monitors catastrophic or high-cost chronic health cases through the health care system. The intent of case management is to maintain the quality of care while reducing the health care costs.

Medical Records Review.

Medical records plays a vital role in UM and may be the least understood. JCAHO's focus on medical records is on the quality of the record (clinical pertinence) and the timely completion of them. Although the requirement for timely completion of medical records was primarily established to improve the quality of patient care, there are implications for

utilization management. It is very difficult to determine the appropriateness of care either concurrently or retrospectively if care is not documented in a timely manner. Additionally, the effectiveness of preadmission certification and preadmission efforts are decreased when there is insufficient medical documentation.

In addition to the importance of the medical review for the appropriateness of care, the quality of the medical records is extremely critical for proper reimbursement. The coding of information is the most important reimbursement technique to master under DRG (Beck, 1989). When physicians understand that the coding system is not elective but is tied to reimbursement which is the lifeblood of an institution, the coding process receives more importance and interest (Longo, 1991).

Purpose of the Study

The purpose of this study was to design an integrated Utilization Management Program for orthopedic services for Fitzsimons Army Medical Center

and Evans Army Community Hospital. The UM Program objectives are to:

- a. Contain orthopedic costs (Direct care and CHAMPUS).
- b. Improve beneficiary access to orthopedic care.
- c. Ensure quality orthopedic care.
- d. Ensure that orthopedic resources within the Colorado Springs Health Service Area, an overlapping catchment area, where several community hospitals and numerous partnership arrangements exist, are efficiently utilized.
- e. Ensure a solid referral base of patients is provided for FAMC's orthopedic GME program.
- f. Provide an example of an integrated UM Program that could possibly be adopted by other FAMC Services within DoD Region III and the Fitzsimons Health Service Region.

II. Method and Procedures

This project was conducted in three phases. The first phase was to examine how civilian hospitals and HMOs conduct orthopedic UM. Visits to two local hospitals, a for-profit and one not-for-profit; and to a staff model HMO were conducted.

The second phase was to analyze how Evans Army Community Hospital and FAMC are integrating orthopedic services so costs are contained, access increased, and quality of care is maintained. Data on orthopedic services such as the NonAvailability Statements (NAS's) issued, supplemental care costs, the nine most frequent and expensive DRGs, and variance of the average Length of Stays (LOS's) of the above orthopedic DRGs were collected and analyzed. Additionally, Medical Expense and Performance Report System (MEPRS) costs for orthopedic care were examined to determine cost trends.

The third phase was to incorporate the above information and knowledge into an integrated UM Program for the orthopedic resources for Fitzsimons Army Medical Center and the DoD hospitals in Colorado.

Subjects

The primary subjects of this study are Fitzsimons Army Medical Center and Evans Army Community Hospital. The U.S. Air Force Academy Hospital is a military secondary subject since it is located in the Colorado Springs Health Service Area and EACH is responsible as the DoD Lead Agent for this area. Civilian secondary

subjects include a staff model HMO, Kaiser Permanente Health Maintenance Organization; a not-for-profit hospital, Saint Joseph's Hospital of Denver; and a for-profit hospital, Humana Hospital of Aurora.

Study Design

This study is of a non-experimental design. It begins with the examination of utilization management practices of a staff model HMO, a not-for-profit hospital, and a for-profit hospital. The reasons for selecting these three civilian organizations are three-fold.

First, each organization has earned the recognition as being a leader in the delivery of health care in the Denver metro area. Kaiser is the dominant HMO in Denver. Saint Joseph's Hospital has the lowest hospital costs within the Denver metro area. Humana of Aurora has been the most profitable Humana Hospital in the country for the past several years.

The second reason is Kaiser is a staff model HMO and the Army has modeled GTC after the staff model HMO. By studying Kaiser's operations, the opportunity to apply some of its UM practices exist.

Lastly, Kaiser and Saint Joseph's Hospital have a referral relationship. Kaiser refers its patients to Saint Joseph's. Kaiser has negotiated very favorable rates with Saint Joseph's. Additionally, Kaiser has three UM nurses in-house who closely monitor Kaiser's inpatients. This relationship is one of the main reasons for Saint Joseph's Hospital having the lowest health care costs in Denver.

The second phase was gathering and analyzing of information to identify any trends in orthopedic costs (direct and CHAMPUS) for the past three fiscal years for FAMC and EACH. UM practices of FAMC and EACH were examined to determine the effectiveness in containing orthopedic costs.

The third phase was to incorporate the above information and knowledge into a recommended integrated orthopedic UM Program for FAMC and EACH.

Data Collection

Information regarding orthopedic costs were gathered from a myriad of sources. External information such as CHAMPUS costs came from the CHAMPUS Medical Information System (CMIS) and the Defense

Medical Information System (DMIS). NonAvailability Statement (NAS) information was provided by the Patient Administration Systems and BioStatistics Activities (PASBA), another external source. The data on the top nine DRGs by frequency and Case Mix Index (CMI) for FAMC and EACH which compared bed days with the Health Care Financing Administration (HCFA) were obtained from the PASBA II database.

Internal information was obtained from the individual hospitals. This information included staffing documentation, MEPRS, supplemental care, and partnership agreements pertaining to orthopedic costs.

Overall, the reliability and validity of the information are good. For example, the previous problems with the reliability and validity of CHAMPUS information have been resolved with the newly established CMIS. With CMIS, CHAMPUS costs are now projected based upon historical claims data. Prior to CMIS, CHAMPUS costs were less reliable and less valid due to missing claims since claims could be filed up to 31 December succeeding year after treatment was provided.

The reliability and validity of length of stays (LOSs) and associated costs depend upon the completeness and accuracy of the medical records. This includes the appropriate coding of diagnoses. Each Army hospital submits medical records information to PASBA. PASBA, as the official custodian of the Army's medical information, edits and purifies the data which also improves the reliability and validity.

There are, however, some inherent problems with reliability and validity of some of the information. For example, the MEPRS database has been criticized historically for being inaccurate because actual hours worked are not entered. Additionally, the tracking of costs is very difficult in MEPRS when patients are transferred between services (cost centers) so all the assigned costs may not portray the actual costs. Patients are also sometimes inappropriately assigned to a cost center upon admission due to having multiple diagnoses.

In spite of these inadequacies, the Army utilizes these databases as its official managerial systems. A conscientious effort was made to identify any

significant inconsistencies or inaccuracies of data beyond the above mentioned inherent problems. For example, Operation Desert Shield/Storm affected the 1991 fiscal year data. In analyzing the past three fiscal years' data, the impact of this significant event was taken into consideration. Confidentiality was maintained by using aggregate data.

III. Results

The effectiveness of civilian or military UM programs is varied. The civilian organizations appeared to have better medical information systems for managerial management than the military. The effectiveness of the military (FAMC and EACH) in managing orthopedic costs in both the Direct Care System and via CHAMPUS varied greatly. From FY 90 to FY 92, total CHAMPUS inpatient orthopedic costs for FAMC and EACH decreased to \$2,684,906 or 13.8%. CHAMPUS admissions decreased 39.3%. Conversely, during this same time frame, FAMC and EACH jointly experienced an increase of 14.7% in admissions. Their orthopedic costs rose to \$11,482,052, a 19.5% increase. A closer look at the different UM programs and a more in-depth examination of orthopedic costs, CHAMPUS and Direct Care, are presented.

UM Findings from the Civilian Sector:

As stated in the method and procedures section, utilization management practices were examined at a staff model HMO, Kaiser Permanente Health Maintenance Organization; a not-for-profit hospital, Saint Joseph's Hospital of Denver; and a for-profit hospital, Humana Hospital of Aurora.

Each of these organizations performs UM differently and at varying levels of proficiency in UM. The differences in UM practices are due to the mission statement, organizational structure, managerial philosophy, etc. of each organization. Each organization stressed the importance of having accurate cost information and relied heavily on concurrent review and case management. To highlight the diversity of UM practices of the above organizations, a brief synopsis on each organization is presented.

Kaiser Permanente Health Maintenance Organization.

In order to understand Kaiser's UM Program, a clinic Referral Review Nurse, the Specialty Referral Review Nurse, several of the specialty clinic appointing personnel, the Quality/Utilization Manager,

an assigned Kaiser UM Nurse at Saint Joseph's Hospital, the Regional Utilization Manager, and the Regional Manager of Medical Review were asked to describe their UM duties.

The referrals from the 12 Kaiser clinics in the Denver area are managed by one Referral Review Nurse who provides support for three of the clinics. All of the other specialty referrals are handled by one Specialty Referral Review Nurse. This Specialty Referral Review Nurse is housed in the Franklin Medical Center where Kaiser's specialties practice. Referrals are managed with a software package, Outside Medical Referral System. Eligibility, verification of benefits, and the necessity of medical care are the first steps that these Review Nurses perform. Approximately 30% to 45% of the medical records are reviewed prior to authorizing referrals. A designated physician assists the Specialty Referral Review Nurse as necessary. This physician also identifies and tracks trends.

Although Kaiser is in the process of upgrading its information system with a more comprehensive clinical

data system, the present system generates reports such as physician summaries on: Total Professional Expense, Total Technical Expense, and Total Home Health Expense. This system also captures referral counts for professional, technical, and home health care, and the average cost of referrals.

The new clinical data system will contain practice protocols for the physicians and the ability to produce more reports/studies. This new system will generate automatic reminders for regular health checks such as glaucoma, pap, etc. which Kaiser considers vital for quality patient management.

The Physician Advisor intervenes on issues of illegibility, incomplete referrals, referrals made to nonpreferred providers, member eligibility, and the appropriateness of medical treatment.

Kaiser patients access the specialty clinics by calling for an appointment. Registered Nurses (RNs) are utilized in this decentralized appointment process. These RNs triage the calls, offer medical advice per the appropriate physician's protocol, and make the appointment, as necessary. The rationale for utilizing

RNs is that they can triage and educate patients which will improve the appropriateness of appointments and also enhance patients' health knowledge. As a possible cost reduction strategy, Kaiser is considering the use of Licensed Practical Nurses (LPNs) to perform these functions.

Kaiser, as mentioned earlier, refers its patients to Saint Joseph's Hospital. Kaiser has three UM nurses who monitor the care of its patients at Saint Joseph's Hospital. One UM nurse is solely responsible for patients over the age of 65 years (Medicare). These UM nurses use different Appropriateness Evaluation Protocols (AEP) to determine admission appropriateness. They each had their own procedures for conducting UM. These UM nurses also modified and used the InterQual Criteria of severity of illness and intensity of service criteria based on their experience and preference. Although the UM Program was not standardized, all one day hospitalizations and deaths were reviewed. Additionally, concurrent reviews are conducted every three days. Kaiser does not utilize length of stay stickers nor flag sheets which inform physicians of the projected DRG LOS. The reason for

not utilizing the DRG LOS projection is physicians may keep patients until the DRG LOS targets when they could have possibly been discharged earlier. The Kaiser UM nurses receive minimal automation support from Saint Joseph's Hospital for their UM efforts.

Kaiser has several initiatives that pertain directly to orthopedics. First, the orthopedic physicians have been teaching the primary care providers how to conduct orthopedic exams for the common orthopedic ailments, i.e. knees, etc. The orthopedists also teach the primary care providers the same language that they use. By conducting this training, primary care providers now diagnose and treat many of the ailments that would have originally been referred to orthopedics. Secondly, orthopedics implemented the "Bone Phone". The primary care providers can call this hot-line to receive instant advice. Within one month of implementing this teaching program and hot-line, orthopedic referrals dropped almost 50% and the waiting time was significantly shortened.

Another orthopedic program that Kaiser is in the process of implementing is "Prehab". The Prehab program is designed for total joint replacement patients. Patients will start physical therapy (PT) prior to surgery to increase their strength. A video tape describing the operation will be shown to these scheduled patients. These patients will be educated that they will probably be discharged on the fourth day to a skilled nursing home. When Kaiser in California instituted this program, the LOS was reduced from about 12 days to 5 days.

Kaiser UM efforts are becoming more focused on the ambulatory care setting in order to prevent churning of patients. Additionally, Kaiser is in the process of determining what specialties to monitor. For example, why monitor OB/GYN when there have been no problems in these two specialties. Due to the cost of performing UM, it makes economical sense to monitor those areas where significant savings or cost avoidance can be achieved. Kaiser is also expanding its clinical review of the payment function. Approximately 75% of the health care bills are not reviewed and are immediately

authorized for payment. However, 20-30% of the reviewed bills are modified. One of most common changes in payment is multiple procedures that have been billed as separate procedures. The Regional Manager of Medical Review usually obtains as much as 50% discounts on multiple procedures bills.

Much of Kaiser's success is attributed to the physician culture. Physicians that join Kaiser are top quality and economically credentialed. Additionally, Kaiser physicians realize that unnecessary tests and longer hospitalization stays actually increase the probability of a lesser quality of care being rendered. Kaiser physicians, of course, have a financial incentive in how they practice medicine so they are in agreement as to what is acceptable and actively police each other.

Saint Joseph's Hospital.

The Quality Assurance Director, the Director of Utilization Management, and the UR Coordinator at Saint Joseph's were interviewed. The UR Coordinator, who is an RN, was observed as she reviewed medical records on the wards.

Since approximately 65% of Saint Joseph's patients are in the Kaiser Plan, only one UR Coordinator is required. This UR Coordinator primarily monitors the Medicare, Medicaid, and contract patients. Saint Joseph's Hospital uses the Colorado Foundation Health preadmission criteria. Concurrent review is conducted about every three days.

In order to assist physicians in discharging their patients within the DRG LOS parameter, an orange sticker is placed on the outside cover of the medical record that has the admission and review dates recorded, and the projected LOS for that patient's diagnosis. If a patient is not discharged by the LOS parameter, justification is required and must be documented in the medical record. Discharges exceeding the LOS parameter are reviewed retrospectively along with other problem cases.

Saint Joseph's Hospital utilizes the automated MediQual System. Quarterly reports on the top 25 DRGs by volume are generated by payor, all payors, and Kaiser. Reports on LOSs, all inpatient stays over 90 days, and all problem cases are reviewed by the UM

Committee. For orthopedic patients, Saint Joseph's Hospital has reduced its total joint replacement LOSs from 13 to 7 days by utilizing PT prior to surgery.

The UM staff of Saint Joseph's Hospital and Kaiser's UM Nurses appear to have a very good relationship. Saint Joseph's Hospital and Kaiser are mutually profiting from this collaborative arrangement. Humana Hospital of Aurora.

Humana Hospital is transitioning to Continuous Quality Improvement (CQI) which affects how UM is performed. Interviews were conducted with the Associate Executive Director and the Quality Assurance(QA)/DRG Coordinator to better understand this transition.

In order to learn how Humana Hospital conducts UM, a weekly UM meeting was attended and observed the QA/DRG Coordinator along with a Social Worker (Discharge Planner), a Dietician, and a Home Health Care Coordinator conduct their UM rounds. Humana Hospital employs one QA/DRG Coordinator, two UM Nurses, and two Discharge Planners.

Humana Hospital does not have a preadmission program. An individual is being hired for the sole purpose of establishing a preadmission program. Even without a preadmission program, Humana Hospital has very few claims denied for inappropriate admission. Normally the day after the admission, UM Nurses conduct a review utilizing the InterQual criteria. One of the reasons for establishing the preadmission program is to start the discharge planning process at the time of admission instead of later during the hospital stay.

UM rounds are conducted twice a week. Critical care patients' medical records are reviewed daily. Humana Hospital does not use stickers to inform the physicians of the projected LOS parameter. Unlike Kaiser's philosophy for not using stickers, Humana Hospital's reason is that there are already too many stickers being used.

Humana Hospital information system uses the software package from Metricor, Inc. This automated information compares the Aurora Humana Hospital with five other Humana hospitals which are similar in CMI, illness and volume. By excluding outliers, the common

physician excuse that his/her patients are sicker than the other physicians' patients is eliminated. Without the outliers, the physicians more readily accept this information and it is still very valuable to management. Generated reports show direct cost per case, the number of cases, average LOS, percent of outliers, and percent of consultations by physician. This cost information is also broken down by type of care received whether it is routine and intensive or critical care, surgery, anesthesia and recovery, pharmacy, laboratory, and radiology.

Even with all this excellent information, Humana is having difficulty in modifying physicians' behavior. Since Humana cannot get a physician to serve as the Physician Advisor, the Associate Executive Director presents the provider profiling information to the physicians. The physicians are requested to modify their costly practice patterns. Physicians' admitting privileges have not been suspended to get them to comply. Humana Hospital relies on physicians to admit to its facility so revenue can be generated. Humana Hospital would prefer to have a Physician Advisor

approach the other physicians on how they could possibly practice medicine less expensively.

Humana Hospital is also successful in reducing the LOS of orthopedic total joint replacement procedures to about four days. Physicians are reminded on the importance of planning ahead and not waiting until the patient is fully recovered before discharging and/or using alternative care sources.

Humana Hospital of Aurora credits profitability not only to its UM Program, but also attributes it to the patient payor mix. A large percent of Humana Hospital patients have private health insurance. Other patients are either self-insured or are Medicare-eligible. Humana Hospital of Aurora treats very few Medicaid and CHAMPUS patients.

CHAMPUS and Direct Care Orthopedic Cost Data.

Army Hospital Commanders are responsible for managing CHAMPUS and Direct care costs in their catchment area. An examination of these costs to include a brief explanation of procedures/regulations that apply to the management of these two health care delivery systems is presented.

CHAMPUS

CHAMPUS-eligible beneficiaries are required to first seek inpatient care from a military hospital if they live within a catchment area. A catchment area consists of a list of predetermined zip codes within a 40 mile radius from the military hospital. Defense Appropriation Acts prohibit the use of CHAMPUS for nonemergency civilian inpatient care if the patient's home is within the designated catchment area of a military hospital where the care is available (AR 40-3, 1985). When military medical services are not available, the military hospital will issue a NonAvailability Statement which allows CHAMPUS-eligible beneficiaries to receive their medical care from civilian sources. Although the CHAMPUS-eligible patient has a cost share, the Government pays the majority of the cost at either the 80% or 75% rate depending on the patient's category, Active Duty Dependent or Retiree/Dependent of Retiree, respectively.

An indicator of how well FAMC and EACH have been able to provide orthopedic care for their CHAMPUS-eligible beneficiaries in the direct care system is the number of NASs issued. The number of NASs issued by FAMC and EACH and the categories for issuance which ensure compliance with the statute are presented in Table 1.

Table 1

NonAvailability Statements for Orthopedics Fitzsimons
Army Medical Center (FAMC) and Evans Army Community
Hospital (EACH) Fiscal Years 90, 91, 92

| | <u>FY 90</u> | <u>FY 91</u> | <u>FY 92</u> |
|---|--------------|--------------|--------------|
| <u>FAMC</u> | | | |
| Facilities Temporarily Not Available | 21 | 18 | 10 |
| Professional Capability Temporarily Not Available | 1 | 19 | 7 |
| Medically Inappropriate Facilities & Professional Capability Permanently Not Available | 1 | 0 | 1 |
| | 0 | 0 | 1 |
| <u>Total</u> | 23 | 37 | 19 |

Table 1 (continued)

NonAvailability Statements for Orthopedics Fitzsimons
Army Medical Center (FAMC) and Evans Army Community
Hospital (EACH) Fiscal Years 90, 91, 92

| | <u>FY 90</u> | <u>FY 91</u> | <u>FY 92</u> |
|--|--------------|--------------|--------------|
| <u>EACH</u> | | | |
| Facilities Temporarily Not Available | 1 | 6 | 2 |
| Professional Capability Temporarily Not Available | 62 | 32 | 20 |
| Medically Inappropriate | 2 | 2 | 4 |
| Facilities & Professional Capability Permanently Not Available | 0 | 0 | 15 |
| <u>Total</u> | 65 | 40 | 41 |

Note 1. For FYs 90 and 91, the actual categories for issuing a NAS were not identified whether the NAS was issued for a temporary or permanent lack of capability. All NASs issued were grouped under the temporary categories.

Note 2. For FY 92, NASs were grouped by Major Diagnostic Category (MDC) so the clinical specialty was not recorded. The MDC used was Muscle/Tissue Disorders which encompasses Orthopedics.

Source: PASBA: DA Form 2789-R, RCS MED 302

The Partnership Program was established as a method for supplementing care for CHAMPUS eligible beneficiaries at a lower rate than the standard CHAMPUS prevailing rate. Army hospitals are authorized by HSC to locally negotiate and approve partnership agreements when the negotiated discounted prevailing CHAMPUS rates meet HSC's published criteria; otherwise, the partnerships must be forwarded to HSC for approval (Memorandum, 1991). When the negotiated rate is 65% or less of the CHAMPUS prevailing rate, the orthopedic partnership agreement can be approved locally. The total Government orthopedic partnership costs for FAMC and EACH for FYs 90-92 are presented at Table 2.

Table 2

Total Government Orthopedic Partnership Costs
Fitzsimons Army Medical Center (FAMC), Evans Army
Community Hospital (EACH) for Fiscal Years 90,
91, 92

| | <u>FY 90</u> | <u>FY 91</u> | <u>FY 92</u> |
|--------------|------------------|------------------|------------------|
| FAMC | \$485,606 | \$512,515 | \$416,562 |
| EACH | <u>\$506,433</u> | <u>\$672,881</u> | <u>\$557,993</u> |
| <u>Total</u> | \$992,039 | \$1,185,396 | \$974,555 |

Source: Champus Health Care Summary by Primary
 Diagnosis, Partnership Only

To gain an appreciation of the magnitude of CHAMPUS orthopedic costs for Colorado, the orthopedic CHAMPUS costs, admissions, and cost per admission for FAMC, EACH, and the U.S. Air Force Academy for FY 90-92 are presented in Table 3.

Table 3

Orthopedic CHAMPUS Cost, Admissions, and Cost Per Admission Fitzsimons Army Medical Center (FAMC), Evans Army Community Hospital (EACH), and U.S. Air Force Academy for Fiscal Years 90, 91, 92

| <u>FY 90</u> | <u>Government Cost</u> | <u>Admissions</u> | <u>Cost Per Admission</u> |
|--------------|------------------------|-------------------|---------------------------|
| FAMC | 1,209,795 | 34 | 53,404 |
| EACH | 1,904,839 | 78 | 34,844 |
| ACADEMY | 829,013 | 41 | 34,597 |
| | | | |
| <u>FY 91</u> | <u>Government Cost</u> | <u>Admissions</u> | <u>Cost Per Admission</u> |
| FAMC | 1,359,227 | 21 | 64,725 |
| EACH | 1,913,344 | 57 | 33,567 |
| ACADEMY | 954,385 | 27 | 35,348 |
| | | | |
| <u>FY 92</u> | <u>Government Cost</u> | <u>Admissions</u> | <u>Cost Per Admission</u> |
| FAMC | 907,876 | 17 | 35,582 |
| EACH | 1,777,030 | 51 | 24,421 |
| ACADEMY | 830,331 | 24 | 20,220 |

Note: The above data also include partnership costs.

Source: CHAMPUS Medical Information System

Direct Care System.

A Hospital Commander can use local operating funds to purchase supplemental care on an inpatient or outpatient basis when such care is beyond the hospital's capability (AR 40-3, 1985). Supplemental Care is nonelective services such as specialized treatment procedures, consultations, tests, supplies, and equipment that are required to augment the overall course of care being provided to eligible patients by the military hospital. Orthopedic Supplemental Care costs, inpatient and ambulatory, for FAMC and EACH for fiscal years 90-92 are presented at Table 4.

Table 4

Orthopedic Supplemental Care Costs Fitzsimons Army Medical Center (FAMC) and Evans Army Community Hospital (EACH) for Fiscal Years 90, 91, 92

| | <u>FY 90</u> | <u>FY 91</u> | <u>FY 92</u> |
|--------------|------------------|------------------|------------------|
| FAMC | \$224,608 | \$ 42,955 | \$ 84,125 |
| EACH | <u>\$337,353</u> | <u>\$258,637</u> | <u>\$ 87,697</u> |
| <u>Total</u> | \$561,961 | \$301,592 | \$171,822 |

Source: Coordinated Care Divisions, FAMC and EACH.

Army hospitals utilize the standardized DoD cost accounting Medical Expense and Performance Report System (MEPRS) to determine total inpatient and ambulatory costs by medical specialty (AR 40-330, 1988). In addition to obvious direct inpatient care expenses of MEPRS, other indirect expenses such as depreciation, logistical, custodial, administrative, graduate medical education, nutrition care, pharmacy, pathology, radiology, anesthesiology, surgical suites, recovery room, therapies (inhalation, occupational, physical), and ward costs, etc. are also captured in MEPRS and rolled into the specialty costs.

In the ambulatory section of MEPRS, costs are presented as Ambulatory Work Units (AWUs). AWUs include direct care expenses, as well as, indirect expenses. AWUs are calculated by multiplying total visits by AWU weights (Optenberg, Coventry, Baker, 1990).

In examining the MEPRs for FAMC and EACH for fiscal years 90-92 as presented in Table 5, some of the data may appear to be contradictory. For example, how can the ALOS decrease while the cost per occupied bed day UM increases? First, if the ALOS is reduced by increasing the clinical staff or by using more ancillary services which increases variable costs, the cost per occupied bed day will increase. Another way for the cost per occupied bed to increase while the ALOS decreases, is for fixed expenses to remain the same or increase without increasing the workload.

The above two examples also demonstrate three important points. First, in analyzing cost data, no single indicator should be used by itself. A shorter ALOS does not necessarily translate into cost savings. Secondly, all costs, some of which are not so obvious and sometimes difficult to calculate, should be considered when analyzing data. Finally, in order maximize cost savings, an integrated UM program is essential for the hospital.

Utilization Management

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Table 5

Medical Expense and Performance Report (MEPR) Fitzsimons Army Medical Center (FAMC) and Evans Army Community Hospital (EACH) for Orthopedic Services Fiscal Years 90, 91, 92

FAMCInpatient

| | <u>Total Expenses</u> | <u>Cost Per Ocup Bed Day</u> | <u>Total Dispositions</u> | <u>Cost Per Disposition</u> | <u>ALOS</u> |
|-------|-----------------------|------------------------------|---------------------------|-----------------------------|-------------|
| FY 90 | 7,473,108 | 412.86 | 1,867 | 4,002.74 | 9.7 |
| FY 91 | 6,917,027 | 407.12 | 1,641 | 4,215.13 | 10.4 |
| FY 92 | 8,089,538 | 625.74 | 1,854 | 4,363.29 | 7.0 |

Ambulatory

| | <u>Total Expenses</u> | <u>Inpt Visits</u> | <u>Outpt Visits</u> | <u>Cost Per Total Visit</u> | <u>AWUS</u> | <u>Cost per AWUS</u> |
|-------|-----------------------|--------------------|---------------------|-----------------------------|-------------|----------------------|
| FY 90 | 1,514,102 | 635 | 19,764 | 74.22 | 738 | 2,051.63 |
| FY 91 | 1,866,638 | 3,118 | 30,752 | 55.11 | 1,226 | 1,522.54 |
| FY 92 | 2,108,968 | 1,318 | 28,213 | 71.42 | 1,069 | 1,972.84 |

EACHInpatient

| | <u>Total Expenses</u> | <u>Cost Per Ocup BedDay</u> | <u>Total Dispositions</u> | <u>Cost Per Disposition</u> | <u>ALOS</u> |
|-------|-----------------------|-----------------------------|---------------------------|-----------------------------|-------------|
| FY 90 | 2,133,553 | 553.16 | 877 | 2,432.79 | 4.4 |
| FY 91 | 2,605,563 | 706.69 | 940 | 2,771.88 | 3.9 |
| FY 92 | 3,392,514 | 744.48 | 1,293 | 2,623.82 | 3.5 |

Ambulatory

| | <u>Total Expenses</u> | <u>Inpt Visits</u> | <u>Outpt Visits</u> | <u>Cost Per Total Visit</u> | <u>AWUS</u> | <u>Cost per AWUS</u> |
|-------|-----------------------|--------------------|---------------------|-----------------------------|-------------|----------------------|
| FY 90 | 1,929,601 | 1,755 | 16,814 | 103.92 | 672 | 2,871.43 |
| FY 91 | 2,180,525 | 1,136 | 16,607 | 122.89 | 642 | 3,396.46 |
| FY 92 | 2,242,307 | 1,204 | 18,059 | 116.40 | 697 | 3,217.08 |

As a method of comparing how well FAMC and EACH are performing against the civilian sector, LOS mean data was extracted from the PASBA II database. Comparisons of the nine most frequent orthopedic DRGs bed days of FAMC and EACH against the Health Care Financing Administration (HCFA) for FYs 90-92 are presented at Tables 6-11. Active Duty (AD) patients are subject to military requirements which lengthen LOSs so they were omitted in the displayed diagnoses. Examples of military requirements which lengthen LOSs include hospitalizing single military members who live in the barracks to ensure adequate medical observation or for isolation due to having a contagious disease. Another factor is for AD patients awaiting to return to duty from convalescence status. By omitting the AD data, a more accurate comparison can be achieved by utilizing the civilian like population. The AD LOS means and CMI means are, however, presented immediately after the non-AD duty data for comparison.

To interpret the data, the FAMC and EACH's means are actual means. The HCFA mean is not the actual civilian mean, but reflects the difference between FAMC

or EACH LOS mean. For example in Table 6., DRG 225 Foot Procedures reflect the FAMC mean as 3.2 which is .2 over the HCFA mean of 3.0. Since there were 108 dispositions and FAMC exceeded the HCFA mean by .2, FAMC had 18 bed days more than what is considered appropriate. Means are rounded to the nearest tenth which account for the minor variances in the differences in the total column.

Comparison of the top nine case mix index (CMI) orthopedic DRGs bed days of FAMC and EACH against the Health Care Financing Administration (HCFA) for FYs 90-92 are presented at Tables 12-17. The CMI is the sum of all DRG relative weights, divided by the number of Medicare cases. The higher the CMI, the sicker the patient is.

Since FAMC is a tertiary facility, its CMI is higher than EACH's. Additionally, when including the AD data, FAMC's CMIs are greater due to treating the most severely ill AD patients. Many of these patients arrive via the aeromedical evacuation system.

Table 6

Fiscal Year 90
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|---|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>225</u> Foot Proc. | 108 | 3.2 | 0.2 | 18 |
| <u>229</u> Hand or Wrist Proc, except Major Joint Proc, w/o CC | 106 | 3.0 | 1.0 | 108 |
| <u>209</u> Major Joint & Limb Reattachment Procedures Lower Extremity | 101 | 20.9 | 10.9 | 1105 |
| <u>243</u> Medical Back Problems | 65 | 9.0 | 4.0 | 261 |
| <u>231</u> Local Excision & Removal of Int. Fix Devices exc Hip & Femur | 65 | 4.9 | 0.9 | 59 |
| <u>446</u> Aftercare w/o History of Malignancy as Secondary Diagnosis | 62 | 6.8 | 3.8 | 233 |
| <u>006</u> Carpal Tunnel Release | 48 | 1.8 | -0.2 | - 11 |
| <u>228</u> Major Thumb or Joint Proc, or oth Hand or Wrist Proc with CC | 43 | 7.1 | 4.1 | 176 |

Table 6 (Continued)

Fiscal Year 90
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|--|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| 256 Other Musculo- skeletal System & Connective Tissue | 42 | 3.0 | -1.0 | - 41 |
| <u>Total</u> | 640 | 7.2 | 3.0 | 1908 |
| <u>Total with AD</u> | 980 | 9.1 | 4.9 | 4791 |

Table 7

Fiscal Year 91
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|--|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>225</u> Foot Proc. | 105 | 3.1 | 0.1 | 13 |
| <u>231</u> Local Excision & Removal of Int. Fix Devices exc Hip & Femur | 74 | 4.6 | 0.6 | 41 |
| <u>209</u> Major Joint & Limb Reattachment Procedures Lower Extremity | 70 | 22.3 | 1.3 | 858 |
| <u>466</u> Aftercare w/o History of Mal- ignancy as Secondary DX | 57 | 7.9 | 4.9 | 277 |
| <u>229</u> Hand or Wrist Proc, except Major Joint Proc, w/o CC | 49 | 2.3 | 0.3 | 16 |
| <u>222</u> Knee Proc w/o CC | 48 | 6.2 | 2.2 | 107 |
| <u>243</u> Medical Back Problems | 46 | 10.2 | 5.2 | 238 |
| <u>256</u> Other Musculo- skeletal System & Connective Tissue | 39 | 5.2 | 1.2 | 48 |

Table 7 (Continued)

Fiscal Year 91
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|--|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| 249 Aftercare, Musculoskeletal System & Con- nective Tissue | 31 | 11.3 | 7.3 | 225 |
| <u>Total</u> | 519 | 7.9 | 3.5 | 1823 |
| <u>Total with AD</u> | 831 | 7.7 | 3.5 | 2934 |

Table 8

Fiscal Year 92
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|--|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>209</u> Major Joint & Limb Reattachment Procedures Lower Extremity | 115 | 18.3 | 8.3 | 956 |
| <u>229</u> Hand or Wrist Proc, except Major Joint Proc, w/o CC | 115 | 1.3 | -0.7 | -79 |
| <u>225</u> Foot Proc. | 87 | 1.4 | -1.6 | -142 |
| <u>231</u> Local Excision & Removal of Int. Fix Devices exc Hip & Femur | 85 | 2.7 | -1.6 | -108 |
| <u>243</u> Medical Back Problems | 84 | 6.5 | 1.5 | 122 |
| <u>222</u> Knee Proc w/o CC | 55 | 3.2 | -0.8 | - 45 |
| <u>006</u> Carpal Tunnel Release | 42 | 1.0 | -1.0 | - 42 |
| <u>228</u> Major Thumb or Joint Proc, or oth Hand or Wrist Proc with CC | 36 | 3.0 | -0.0 | - 1 |

Table 8 (Continued)

Fiscal Year 92
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|--|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>219</u> Lower Extreme & Humer Proc ex Hip, Foot, Femur, Age > 17 w/o CC | 30 | 7.5 | 2.5 | 76 |
| <u>Total</u> | 649 | 5.7 | 1.1 | 737 |
| <u>Total with AD</u> | 1044 | 7.0 | 2.4 | 2535 |

Table 9

Fiscal Year 90
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Evans Army Community Hospital (EACH) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|---|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>222</u> Knee Proc w/o CC | 43 | 1.4 | -2.6 | -111 |
| <u>229</u> Hand or Wrist Procedure Except Major Joint Proc, w/o CC | 31 | 1.2 | -0.8 | - 26 |
| <u>006</u> Carpal Tunnel Release | 26 | 1.9 | -0.1 | - 3 |
| <u>231</u> Local Excision & Removal of Int Fix Devices Exc Hip & Femur | 16 | 1.8 | -2.3 | - 36 |
| <u>209</u> Major Joint & Limb reattachment Procedures, lower Extremity | 13 | 12.6 | 2.6 | 34 |
| <u>243</u> Medical Back Problem | 7 | 3.1 | -1.9 | -13 |
| <u>227</u> Soft Tissue Proc, w/o CC | 7 | 1.7 | -1.3 | - 9 |
| <u>236</u> Fractures of Hip & Pelvis | 6 | 4.2 | -2.8 | -17 |

Table 9 (Continued)

| <u>Fiscal Year 90</u> | | | | |
|---|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | |
| <u>DRG</u> | <u>Dispositions</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
| 254 Fx, Sprn, Strain & Disloc of Uparm, Lowleg ex Foot age >17 w/o CC | 6 | 1.8 | -2.2 | -13 |
| <u>Total</u> | 155 | 2.6 | -1.3 | -194 |
| <u>Total with AD</u> | 532 | 4.3 | .5 | 244 |

Table 10

| <u>Fiscal Year 91</u> | | | | |
|---|---------------------|--------------------------|--------------------------------|---------------------------------|
| <u>Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | |
| <u>DRG</u> | <u>Dispositions</u> | <u>EACH LOS Mean</u> | <u>Mean LOS: EACH-HCFA</u> | <u>Total LOS: EACH-HCFA</u> |
| <u>229</u> Hand or Wrist Procedure Except Major Joint Proc, w/o CC | 73 | 1.2 | -0.8 | - 55 |
| <u>222</u> Knee Proc w/o CC | 73 | 2.0 | -2.0 | -144 |
| <u>231</u> Local Excision & Removal of Int Fix Devices Exc Hip & Femur | 35 | 2.0 | -2.0 | - 69 |
| <u>006</u> Carpal Tunnel Release | 27 | 1.3 | -0.7 | - 18 |
| <u>224</u> Shoulder, Elbow or Forearm Proc, exc Major Joint Proc, w/o CC | 18 | 3.0 | 0.0 | 0 |
| <u>209</u> Major Joint & Limb reattachment Procedures, lower Extremity | 18 | 19.6 | 3.6 | 65 |
| <u>008</u> Periph & Cranial Nerve I OTB Nerv Syst Proc w/o CC | 13 | 1.5 | -1.5 | - 20 |
| <u>223</u> Major Shoulder/Elbow Proc, or other Upper Extremity Proc w CC | 12 | 3.2 | 0.2 | 2 |

Table 10 (Continued)

| <u>Fiscal Year 91</u> | | | | |
|---|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | |
| <u>DRG</u> | <u>Dispositions</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
| 243 Medical Back Problem | 11 | 5.9 | 0.9 | 10 |
| <u>Total</u> | 280 | 2.7 | -0.8 | -229 |
| <u>Total with AD</u> | 608 | 3.4 | -0.1 | - 70 |

Table 11

Fiscal Year 92
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Evans Army Community Hospital (EACH) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|---|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>222</u> Knee Proc w/o CC | 104 | 1.6 | -2.4 | -245 |
| <u>231</u> Local Excision & Removal of Int Fix Devices Exc Hip & Femur | 67 | 2.6 | -1.4 | - 97 |
| <u>229</u> Hand or Wrist Procedure Except Major Joint Proc, w/o CC | 64 | 1.3 | -0.7 | - 47 |
| <u>209</u> Major Joint & Limb reattachment Procedures, lower Extremity | 37 | 11.0 | 1.0 | 37 |
| <u>006</u> Carpal Tunnel Release | 35 | 1.0 | -1.0 | - 35 |
| <u>227</u> Soft Tissue Proc s/o CC | 18 | 1.8 | -1.2 | - 22 |
| <u>219</u> Lower Extreme & Humer Proc ex- cept Hip, Foot, Femur, age > 17, w/o CC | 15 | 3.9 | -1.1 | - 16 |
| <u>223</u> Major Shoulder/ Elbow Proc, or other Upper Extremity Proc w CC | 15 | 2.6 | -0.4 | - 6 |

Table 11 (Continued)

Fiscal Year 92
Nine Most Frequent Orthopedic Diagnosis Related Groups (DRGs) Bed
Days Evans Army Community Hospital (EACH) Excluding Active Duty
(AD) Compared to Health Care Financing Administration (HCFA)

| <u>DRG</u> | <u>Dispositions</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|------------------------|---------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>232 Arthroscopy</u> | 13 | 1.5 | -2.3 | - 33 |
| <u>Total</u> | 368 | 2.8 | -1.3 | -464 |
| <u>Total with AD</u> | 893 | 3.1 | -0.9 | -802 |

Table 12

Fiscal Year 90
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Fitzsimons Army Medical Center (FAMC) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|--|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| 214 Back & Neck Proc with CC | 5 | 4.02 | 51.6 | 42.6 | 213 |
| 217 Wound Debrid & Skin Graft ex Hand, for Muscskelet & Conn Tiss Dis | 7 | 3.62 | 19.4 | 5.4 | 38 |
| 415 O.R. Proc for Infections & Parasitic Diseases | 1 | 3.60 | 16.0 | 1.0 | 1 |
| 468 Extensive O.R. Proc Un- Related to Principal DX. | 16 | 3.42 | 5.6 | -7.4 | -119 |
| 007 Periph & Cranial Nerve & other Nerv System Proc w CC | 7 | 2.71 | 5.3 | -6.7 | - 47 |
| 113 Amputat for Circ System Disorders Except Upper Limb & Toe | 1 | 2.69 | 43.0 | 29.0 | 29 |

Table 12 (Continued)

Fiscal Year 90
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Fitzsimons Army Medical Center (FAMC) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|---|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>263</u> Skin Graft &/or Debrid for Skin Ulcer or Cellulitis w CC | 1 | 2.69 | 2.0 | -13.0 | -13 |
| <u>004</u> Spinal Procedures | 2 | 2.61 | 30.5 | 20.5 | 41 |
| <u>209</u> Major Joint & Limb re- attachment Procedures, lower Extremity | 101 | 2.49 | 20.9 | 10.9 | 1105 |
| <u>Total</u> | 141 | 2.74 | 19.6 | 8.9 | 1248 |
| <u>Total</u> <u>with AD</u> | 71 | 4.04 | 26.2 | 15.4 | 1096 |

Table 13

| <u>Fiscal Year 91</u> | | | | | |
|---|----------------------|------------|----------------------|----------------------------|-----------------------------|
| <u>Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups (DRGs) Bed Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | | |
| <u>DRG</u> | <u>Dis-positions</u> | <u>CMI</u> | <u>FAMC LOS Mean</u> | <u>Mean LOS: FAMC-HCFA</u> | <u>Total LOS: FAMC-HCFA</u> |
| <u>486</u> Other O.R. Proc for Multiple Significant Trauma | 2 | 5.51 | 32.0 | 21.4 | 43 |
| <u>468</u> Extensive O.R. Proc Un- Related to Principal DX | 16 | 3.42 | 7.6 | -5.5 | -89 |
| <u>217</u> Wound Debrid & Skin Graft ex Hand, for Muscskelet & Conn Tiss Dis | 3 | 3.06 | 7.3 | -6.3 | -19 |
| <u>113</u> Amputat for Circ System Disorders Except Upper Limb & Toe | 1 | 2.77 | 18.0 | 4.0 | 4 |
| <u>285</u> Amputat of Lower Limb for Endocrine, Nutrit, & Meta- bol Disorder | 1 | 2.75 | 16.0 | 1.3 | 1 |

Table 13 (Continued)

Fiscal Year 91
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Fitzsimons Army Medical Center (FAMC) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>FAMC LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>FAMC-HCFA</u> | <u>Total LOS:</u> <u>FAMC-HCFA</u> |
|---|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>209</u> Major Joint & Limb re- attachment Procedures, lower Extremity | 70 | 2.68 | 22.3 | 12.9 | 900 |
| <u>214</u> Back & Neck Proc w CC | 11 | 2.57 | 26.1 | 17.9 | 198 |
| <u>213</u> Amput- ation for Musculo- skeletal System & Connective Tissue Disorder | 9 | 2.31 | 25.4 | 16.2 | 146 |
| <u>210</u> Hip & Femur Proc except Major Joint age > 17, with CC | 13 | 2.08 | 20.7 | 9.9 | 130 |
| <u>Total</u> | 126 | 2.74 | 20.5 | 10.4 | 1314 |
| <u>Total</u> <u>with AD</u> | 120 | 3.38 | 23.6 | 13.1 | 1568 |

Table 14

| <u>Fiscal Year 92</u> | | | | | |
|---|----------------------|------------|----------------------|----------------------------|-----------------------------|
| <u>Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups (DRGs) Bed Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | | |
| <u>DRG</u> | <u>Dis-positions</u> | <u>CMI</u> | <u>FAMC LOS Mean</u> | <u>Mean LOS: FAMC-HCFA</u> | <u>Total LOS: FAMC-HCFA</u> |
| <u>217</u> Wound Debrid & Skin Graft ex Hand, for Muscskelet & Conn Tiss Dis | 3 | 4.54 | 42.0 | 28.4 | 85 |
| <u>477</u> Non-exten-sive O.R. Proc UnRelated to Principal Dx | 4 | 4.37 | 30.5 | 24.5 | 98 |
| <u>471</u> Bilateral or Multiple Major Joint Procedures of Lower Extremity | 2 | 3.89 | 22.5 | 10.6 | 21 |
| <u>113</u> Amput-ation for Circ System Disorders except Upper Limb & toe | 4 | 3.55 | 27.8 | 13.8 | 55 |
| <u>415</u> O.R. Proc for Infections & Parasitic Diseases | 5 | 3.51 | 9.2 | -5.4 | -27 |

Table 14 (Continued)

| <u>Fiscal Year 92</u> | | | | | |
|---|----------------------|------------|----------------------|----------------------------|-----------------------------|
| <u>Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups (DRGs) Bed Days Fitzsimons Army Medical Center (FAMC) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | | |
| <u>DRG</u> | <u>Dis-positions</u> | <u>CMI</u> | <u>FAMC LOS Mean</u> | <u>Mean LOS: FAMC-HCFA</u> | <u>Total LOS: FAMC-HCFA</u> |
| <u>468</u> Extensive O.R. Proc Un-Related to Principal Dx. | 4 | 3.42 | 8.3 | -4.8 | -19 |
| <u>001</u> Craniotomy age >17 except for Trauma | 1 | 3.23 | 13.0 | 1.7 | 2 |
| <u>238</u> Osteomyelitis | 7 | 2.92 | 30.6 | 20.4 | 143 |
| <u>209</u> Major Joint & Limb re-attachment Procedures, lower Extremity | 115 | 2.60 | 18.3 | 8.9 | 1025 |
| <u>Total</u> | 145 | 2.81 | 19.4 | 9.5 | 1382 |
| <u>Total with AD</u> | 38 | 5.34 | 39.2 | 28.6 | 1085 |

Table 15

Fiscal Year 90
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|---|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>468</u> Extensive O.R. Proc Un- Related to Principal Dx. | 1 | 3.42 | 3.0 | -10.0 | -10 |
| <u>217</u> Wound Debrid & Skin Graft ex Hand, for Muscskelet & Conn Tiss Dis | 3 | 3.16 | 4.0 | -10.0 | -30 |
| <u>263</u> Skin Graft &/or Debrid for Skin Ulcer or Cellulitis w CC | 1 | 2.69 | 4.0 | -11.0 | -11 |
| <u>209</u> Major Joint & Limb reattach- ment Procedures, lower Extremity | 13 | 2.37 | 12.4 | 2.6 | 34 |
| <u>216</u> Biopsies of Musculoskeletal System & Connect- ive Tissue | 1 | 2.03 | 3.0 | - 7.0 | - 7 |
| <u>440</u> Wound Debridements for Injuries | 1 | 1.85 | 10.0 | 2.0 | 2 |

Table 15 (Continued)

Fiscal Year 90
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|--|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>213</u> Amput- ation for Musculoskeletal System & Con- nective Tissue | 1 | 1.71 | 12.0 | 3.0 | 3 |
| <u>238</u> Osteo- nylitis | 1 | 1.59 | 6.0 | - 5.0 | - 5 |
| <u>477</u> Nonextensive O.R. Proc Unrelated to Principal DX | 1 | 1.40 | 1.0 | 6.0 | 6 |
| <u>Total</u> | 23 | 2.39 | 9.3 | - 1.3 | -29 |
| <u>Total with AD</u> | 48 | 2.54 | 11.0 | - 0.2 | - 8 |

Table 16

Fiscal Year 91
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|---|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>468</u> Extensive O.R. Proc Un- Related to Principal Dx. | 1 | 3.42 | 1.0 | -12.0 | -12 |
| <u>217</u> Wound Debrid & Skin Graft ex Hand, for Muscskelet & Conn Tiss Dis | 4 | 3.16 | 4.8 | - 9.3 | -37 |
| <u>007</u> Periph & Cranial Nerve & Other Nerve System Proc w CC | 1 | 2.72 | 2.0 | -10.0 | -10 |
| <u>209</u> Major Joint & Limb reattachment Procedures, lower Extremity | 18 | 2.37 | 13.6 | 3.6 | 65 |
| <u>216</u> Biopsies of Musculoskeletal System & Connect- ive Tissue | 2 | 2.03 | 11.0 | 1.0 | 2 |
| <u>442</u> Other O.R. Proc for Injuries w CC | 1 | 1.94 | 3.0 | - 3.0 | - 3 |
| <u>440</u> Wound Debridements for Injuries | 2 | 1.85 | 4.5 | - 3.5 | - 7 |

Table 16 (Continued)

| <u>Fiscal Year 91</u> | | | | | |
|--|----------------------|------------|----------------------|----------------------------|-----------------------------|
| <u>Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups (DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA)</u> | | | | | |
| <u>DRG</u> | <u>Dis-positions</u> | <u>CMI</u> | <u>EACH LOS Mean</u> | <u>Mean LOS: EACH-HCFA</u> | <u>Total LOS: EACH-HCFA</u> |
| <u>221</u> Knee Proc w CC | 2 | 1.83 | 8.0 | 0.0 | 0 |
| <u>238</u> Osteo-nylitis | 1 | 1.59 | 17.0 | 6.0 | 6 |
| <u>Total</u> | 32 | 2.39 | 10.4 | 0.1 | 4 |
| <u>Total with AD</u> | 41 | 2.67 | 13.4 | 1.9 | 79 |

Table 17

Fiscal Year 92
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|---|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>415</u> O.R. Proc for Infections & Parasitic Diseases | 1 | 3.60 | 6.0 | -9.0 | - 9 |
| <u>468</u> Extensive O.R. Proc Un- Related to Principal Dx. | 3 | 3.42 | 2.3 | -10.7 | -32 |
| <u>217</u> Wound Debrid & Skin Graft ex Hand, for Muscskelet & Conn Tiss Dis | 5 | 3.16 | 3.8 | -10.2 | -51 |
| <u>285</u> Amputat of Lower Limb for Endocrine, Artrit, & Meta- bol Discrder | 1 | 2.72 | 12.0 | - 3.0 | - 3 |
| <u>209</u> Major Joint & Limb reattach- ment Procedures, lower Extremity | 37 | 2.37 | 11.0 | 1.0 | 37 |
| <u>216</u> Biopsies of Musculoskeletal System & Con- nective Tissue | 2 | 2.03 | 8.0 | - 2.0 | - 4 |

Table 17 (Continued)

Fiscal Year 92
Top Nine Case Mix Index (CMI) Orthopedic Diagnosis Related Groups
(DRGs) Bed Days Evans Army Community Hospital (EACH) Excluding
Active Duty (AD) Compared to Health Care Financing Administration
(HCFA)

| <u>DRG</u> | <u>Dis-</u> <u>positions</u> | <u>CMI</u> | <u>EACH LOS</u> <u>Mean</u> | <u>Mean LOS:</u> <u>EACH-HCFA</u> | <u>Total LOS:</u> <u>EACH-HCFA</u> |
|---|---------------------------------|------------|--------------------------------|--------------------------------------|---------------------------------------|
| <u>210</u> Hip & Limb Proc exc Major Joint age >17 with CC | 2 | 1.90 | 15.0 | 4.0 | 8 |
| <u>221</u> Knee Proc w CC | 2 | 1.83 | 6.0 | -2.0 | - 4 |
| <u>238</u> Osteo- myelitis | 1 | 1.59 | 1.0 | -10.0 | -10 |
| <u>Total</u> | 54 | 2.47 | 9.4 | - 1.5 | -68 |
| <u>Total with AD</u> | 61 | 2.54 | 10.6 | - 0.5 | -28 |

Table 18 provides a summary of FAMC's and EACH's performance in managing the top nine most frequent and CMI orthopedic DRGs bed days. With the exception the increase of FAMC's CMI bed days, there has been a steady downward trend in the LOSs. This downward trend is favorable.

Table 18

Summary Comparative of Top Nine Most Frequent and Case Mix Index (CMI) Orthopedic Diagnosis Related Groups (DRGs) Bed Days of Fitzsimons Army Medical Center (FAMC) and Evans Army Community Hospital (EACH) Excluding Active Duty (AD) Compared to Health Care Financing Administration (HCFA) Fiscal Years 90-92

| | | <u>FY 90</u> | <u>FY 91</u> | <u>FY 92</u> |
|-----------|----------------|--------------|--------------|--------------|
| Top 9 DRG | Mean FAMC-HCFA | 1908 | 1823 | 737 |
| Top 9 DRG | Mean EACH-HCFA | -194 | -229 | -464 |
| Top 9 CMI | Mean FAMC-HCFA | 1248 | 1314 | 1382 |
| Top 9 CMI | Mean EACH-HCFA | -29 | 4 | -68 |

As shown in Table 18, FAMC and EACH compare favorably in the overall management of orthopedic DRGs against HCFA parameters. In order to compare FAMC's and EACH's performance against the hospitals visited in the metro Denver area, Humana Hospital of Aurora and Saint Joseph's Hospital, information was extracted from the published annual report on hospital charges for the most common reasons for hospitalization by the Colorado Hospital Association (1992). Data from FY 91 for FAMC and EACH were used and came from Tables 7 and 10, respectively. Data for the civilian hospitals are for calendar year of 1991. Comparison was made from mutually available published orthopedic DRGs data. The below civilian hospitals consistently have shorter LOSs.

Table 19

Orthopedic Diagnosis Related Groups (DRGs) Average Length of Stay (ALOS) for Fitzsimons Army Medical Center (FAMC) & Evans Army Community Hospital (EACH) Excluding Active Duty (AD); Humana Hospital, Aurora; and Saint Joseph's Hospital in Denver for 1991.

| <u>DRG</u> | <u>Average Length of Stay (ALOS)</u> | | | |
|---|--------------------------------------|-------------|---------------|-------------------|
| | <u>FAMC</u> | <u>EACH</u> | <u>Humana</u> | <u>St. Joseph</u> |
| <u>209</u> Major Joint & Limb Reattachment Procedures Lower Extremity | 22.3 | 19.6 | 8.5 | 7.6 |
| <u>222</u> Knee Proc w/o CC | 6.2 | 2.0 | 2.7 | 2.8 |
| <u>224</u> Shoulder, Elbow or Forearm Proc, exc Major Joint Proc, w/o CC | - | 3.0 | 1.9 | 1.6 |
| <u>243</u> Medical Back Problems | 10.2 | 5.9 | 4.4 | 4.2 |

UM Findings from the Military Sector:

Evans Army Community Hospital.

Evans Army Community Hospital serves primarily the population of Fort Carson and the retirees in the Colorado Springs area. EACH was built in 1986. The Automated Quality Care and Evaluation Support System (AQCESS) is the hospital's information system. Workload data to include ad hoc reporting is available via AQCESS.

As mentioned earlier, EACH was a CAM demonstration site for three years till October 1992. Under the CAM demonstration, EACH was responsible for the all the health care resources within its Health Service Area. During this time frame, a Coordinated Care Division (CCD) was established which was responsible for setting up provider networks as deemed necessary to better manage the health care costs in its catchment area. Additionally, CCD is well staffed and is responsible for UM. This demonstration was considered a success.

EACH has a preadmission service but does not utilize established criteria to determine the appropriateness of admissions. The use of InterQual

criteria is being considered. Formal concurrent review is no longer being conducted on the wards, since LOSs do not appear to be excessive. The decision not to perform concurrent review was based on not being economically feasible. UM can be very labor intensive. Although concurrent review is not being conducted, LOS is closely monitored by comparing EACH's LOS against CHAMPUS LOS data. Service chiefs are queried on those cases exceeding the CHAMPUS LOS parameters.

Another EACH initiative is departmental budgeting. Departments will be held accountable for workload and cost performance. Additionally, provider profiling will be performed later this year. Accountability, departmentally and individually, will be monitored.

EACH's nurses along with Social Work personnel perform discharge planning on the ward. An initiative that EACH is planning is the establishment of a seven-bed convalescence unit on the ward. When AD personnel require convalescence, these individuals will be discharged and will be allowed to stay in this convalescence area free of charge. Previously, these same AD patients were not discharged until they were

ready to be returned to duty. By utilizing this convalescence unit, the AD LOS should be further reduced. An additional benefit derived from this convalescent area is that more orthopedic Same Day Surgeries will be able to be performed since inpatient beds will be available.

Another orthopedic initiative that EACH is undertaking is the negotiating of partnership agreements with local rehabilitation organizations to reduce rehab costs. During FY 92, \$670,449 was spent on 20 patients in the Colorado Springs Health Service Area for rehabilitative services. By negotiating discounts with these rehabilitation organizations, rehab costs should be reduced significantly.

Evans Army Community Hospital is also the designated lead agent for the Colorado Springs Health Service Area. The catchment area of Fort Carson overlaps with the Air Force Academy. Monthly meetings are held with the executive staff from EACH, the Air Force Academy Hospital, and Peterson's Air Force Health Clinic. Plans on how to manage health care resources in the Colorado Springs Health Service Area are discussed. Thus far, the leaderships from each organization are cooperating and coordinating their efforts in order to improve access to beneficiaries and control health care costs. For example, EACH does not

have a Magnetic Resonance Imaging (MRI) unit so the Air Force Academy Hospital allots EACH 75% of the appointment times for its MRI. Previous to this resource sharing arrangement, EACH either sent patients to FAMC or utilized Supplemental Care funds to obtain MRIs. This coordinated effort is entitled the Pikes Peak Region Gateway to Care.

Fitzsimons Army Medical Center.

The Orthopedic Service is one of the busiest at FAMC. Although it is well-staffed, there seems to be an insatiable demand for orthopedic services. The Chief, Orthopedics is very innovative. In order to reduce the backlog of orthopedic patients, the Chief schedules mega clinics periodically. During the last one-day orthopedic mega clinic, approximately 610 individuals were scheduled and screened. Additional radiological support for this clinic was provided by the 10th Mobile Army Surgical Hospital (MASH), Fort Carson. Although the ambulatory backlog is reduced via these mega clinics, the operating backlog becomes larger. The Orthopedic Service also operates a residency program which affects the efficiency of providing orthopedic care.

Fitzsimons Army Medical Center operates two hospital information systems. The first system is a

Veteran Administration's information system that has been modified to meet FAMC's needs. This information system is known as FITZ-HIS. The second information system is AQCESS which was a DoD directed system installed after FITZ-HIS. The two systems do not interface but management information can be generated from either system. Although management information has been available, it has not been routinely shared with physicians.

At FAMC, UM is the responsibility of the Quality Improvement/Risk Management Office. Unlike EACH, FAMC's Coordinated Care Division is not well staffed nor prepared to perform UM. Thus far, FAMC's UM efforts have been directed primarily at the inpatient setting. Medical records on the wards were reviewed for appropriateness of care by the UR Coordinator. The UR Coordinator additionally attended the various ward discharge planning meetings.

Since the beginning of this project, FAMC's UM Program has improved significantly. A brief synopsis on each of the UM initiatives is presented.

The first initiative is the locating a portion of Physical Therapy (PT) with the Orthopedics Ward in December 1992. The advantages realized by collocating PT with the fifth floor Orthopedic Ward are: reduced

patient transport requirements, decreased no-show to PT appointments, increased availability of the patient and the patient's medical record, and lessened the inconvenience to the patients of having to go to the first floor PT Clinic.

The second initiative is the expansion of the preadmission program for the entire hospital. Prior to 15 March 1993, Same Day Surgery (SDS) and the Obstetrics Clinic were the only services using a preadmission program. The preadmission program is being phased in first with surgical patients and will phase in the other hospital services by October 1993. Staffing of the preadmission service, which is centrally located on the ground floor of FAMC, consists of a preadmission clerk, a preadmission nurse, and a precertification nurse. A DRG Coordinator, a UM Coordinator, a Home Health Care Nurse, and a Discharge Planner are actively involved in the preadmission service. This multi-disciplined service was established from existing resources and is designed to: improve patient care and customer satisfaction, reduce the number of inappropriate admissions, reduce LOS,

enhance discharge/home health care planning, reduce costs associated with inpatient care episodes, and improve third party payor collection. The InterQual criteria is being utilized and a targeted DRG LOS sheet for the physician is affixed to the patient's medical record.

The third initiative is the reorganization of the Department of Nursing (DON) to incorporate the concept of Advanced Practice Groups (APGs). APGs are designed to better utilize nursing personnel and improve concurrent review and case management which will further facilitate the discharge planning process. For example, one APG Nurse is responsible for Neurosurgery, Plastic Surgery, and Orthopedics.

Orthopedics discharge planning has improved by eliminating the ward's weekly discharge planning meetings which were not attended by physicians. Discharge planning is now the first agenda item at the weekly Orthopedics Grand Rounds. Participants at these Grand Rounds include the orthopedists, the APG Nurse for Orthopedics, the Orthopedic Ward Nurse, a Physical Therapist, an Occupational Therapist, a Discharge

Planner, and a Home Health Care Nurse. The coordination and management of the orthopedic patients have improved due to better communications among this multi-discipline health care team, greater sensitivity to the projected DRG LOSs, and use of alternative health care resources.

The fourth initiative is a combination of actions to reduce LOSs. The FAMC Commander directed that patients would not be admitted more than one day prior to their operations and preferably, the same day of surgery. Additionally, the Commander informed the clinical staff that ambulatory patients would not be admitted for the sole purpose of expediting the process to obtain diagnostic testing, i.e., MRIs, etc.

One major factor contributing to longer LOSs is due to the air evacuation system. Since FAMC is a tertiary hospital, it receives approximately 250 patients a month via the Air Force's aeromedical evacuation system. FAMC has two regularly scheduled aeromedical flights a week, Tuesdays and Fridays. For example, if a patient were medically ready for discharge on Wednesday, the patient remained as an

inpatient and would be regulated for Friday's aeromedical flight. As a solution, a ward was made available in the middle of March 1993 for patients who no longer required inpatient care to remain at FAMC until their aeromedical flight or transportation arrived. Patients are now discharged when medically indicated. They can stay free of charge and also obtain meals from the hospital at a reduced rate. Conversely, patients who arrive earlier than their scheduled admission date due to the aeromedical schedule have an option to stay in this free transient area until they are admitted. By providing billeting and admitting/discharging patients when it is medically appropriate, costs are reduced and LOS data are accurate.

The fifth initiative is the establishment of a Rehabilitation Committee. This multi-disciplinary group consists of representatives from Physical Medicine, Social Work, Department of Nursing, Physical Therapy, Occupational Therapy, Speech Therapy, and a Home Health Care Coordinator. Due to their efforts from February through September 1992, \$302,357 was cost

avoided in the management of 38 patients. To further enhance the management of patients requiring rehabilitation, a case manager was hired. Additionally, Partnership Agreements are being negotiated with two major rehabilitation organizations at a rate of 80% of the CHAMPUS prevailing rate which will require HSC approval. These agreements will further reduce FAMC's rehabilitation costs which totalled \$658,409 in FY 92.

IV. Discussion

Civilian and military hospitals are facing challenging times. Although each sector is confronted with similar challenges, there are differences. The military sector will be addressed first.

FAMC and EACH have independently taken actions to improve their hospitals' operations via UM efforts. Many of their UM efforts such as shutting down beds, consolidating and/or closing wards, reducing or eliminating reliance on contract providers to include partners, and restricting supplemental care to the absolutely essential were published subsequently by HSC as initiatives it would support in reducing the FY 94

budget decrement (Memorandum, 1993). HSC, however, will not support the denial of care to a category of beneficiaries; disengagement to CHAMPUS when it results in an increased net cost to the command, and actions that will result in an unacceptable level of service or risk to our beneficiaries.

FAMC and EACH must continue to be innovative in their UM efforts and comply with HSC's guidance which is a major challenge. For example, UM decisions concerning the direct care system affects the indirect care system (CHAMPUS), and vice versa. This relationship will become clearer when the past three FYs of direct care and CHAMPUS cost data are examined.

It is not surprising for FAMC's and EACH's total CHAMPUS costs to decline 33.4% and 30% from FY 90 to FY 92, respectively since FAMC's CHAMPUS admissions dropped approximately 50% while EACH's admissions fell 33.4%, Table 3. The primary method of controlling CHAMPUS admissions is by providing the required health care in the direct care system. When this care is not available in the direct care system, an NAS is issued. As depicted in Table 1, the number of orthopedic NASs

for FAMC remained stable. The mix, however, changed with only half the number of NASs being issued for facilities temporarily not available. This decrease was offset by the increase of NASs issued for the temporary lack of professional capability.

Since the number of FAMC's NASs remained about the same, why did the total CHAMPUS cost decrease so much? The answer can be found in Tables 2, 4, and 5. FAMC provided more orthopedic care via the direct care system and less via partnership agreements. FAMC's orthopedic partnership costs decreased 14.2%.

On the other hand as displayed in Table 3, EACH's total CHAMPUS cost was reduced for two reasons. First, the number of orthopedic NASs issued by EACH decreased 34% from FY 90 as shown in Table 1. This decrease in NASs, especially in the category of professional capability temporarily not available, is attributed primarily to the establishment of orthopedic partnership agreements during the CAM Demonstration. The second reason for the decline in EACH's total CHAMPUS cost was due to the increased use of orthopedic partnerships. In Table 2, EACH's orthopedic partnership costs increased 10.2% from FY 90.

The above information demonstrates two points. First, the relationship of providing health care via the direct health care system lowers CHAMPUS costs. The second point is that FAMC and EACH significantly reduced their CHAMPUS orthopedic costs by taking different approaches; both approaches worked! These independent approaches in successfully managing CHAMPUS costs further reinforces the opinion that UM efforts should be left to the hospital's discretion since each facility has unique requirements.

This uniqueness is further demonstrated by examining Table 3. The importance of demographics and geographical location is revealed. Since EACH and the Air Force Academy Hospital support primarily a young, healthy population in the same geographical area, the costs per admission are comparable. However, FAMC serves a older, sicker population and is located in a metropolitan area where costs are higher. The cost per admission is approximately \$12,000 higher than in the Colorado Springs Health Service Area. The downward trend in costs is encouraging.

In evaluating the direct health care system, several trends are identified. First, FAMC and EACH have experienced declines of 62.5% and 74%, respectively, in orthopedic supplemental care costs since FY 90. This is attributed to tighter controls for patients to receive supplemental care. Secondly, diagnostic equipment, such as MRIs, has been procured or shared, i.e., the Academy's MRI, which has significantly reduced supplemental care costs. Thirdly, after the assignment of a military podiatrist to EACH, podiatry patients were no longer referred out on supplemental care. These factors contributed to lower orthopedic supplemental care costs.

In analyzing FAMC's MEPRs in Table 5, there are several trends. Although the inpatient workload has remained stable, the ambulatory workload has increased by 42.7%. Much of this increase in ambulatory workload without decreasing inpatient workload is due to a dedicated orthopedic staff. This increase in ambulatory workload parallels the civilian trend to shift more workload to the outpatient setting. The cost per disposition increased 9%, versus a 3.8%

decrease in ambulatory costs.

When examining EACH's data in Table 5, inpatient workload increased 47.4%. This is attributed to the increased number of same day surgeries, which helped slow the cost per disposition to 7.9%. EACH's ambulatory workload slightly increased by 7% which resulted with a 12% rise in its orthopedic ambulatory care cost.

The cost per orthopedic disposition is \$1,739.47 more at FAMC than for EACH. This differentiation can be attributed to factors such as the variation in physical plants, FAMC's more expensive diagnostic equipment, FAMC's GME program, and populations served.

The disparity between the studied population served by FAMC and EACH can be examined in Tables 12-17. FAMC's CMIs for non-Active Duty and Active Duty patients are higher than EACH's. These higher CMIs reflect the more severely ill patients treated at FAMC which require more extensive services. This difference in CMIs should be of no surprise since FAMC is a tertiary facility.

When analyzing these same tables, FAMC does not compare favorably with the civilian sector. Although FAMC exceeds HCFA's LOS means, the disparities are getting smaller. FAMC can apply UM methods to shorten its LOSs. For example in Table 6., DRG 209 indicates that FAMC's LOS exceeds HCFA mean by 10.9 days per case for a total of 1,105 days. By using case management, the LOSs of patients with this diagnosis should be reduced which will significantly decrease FAMC's costs. Two years later for this same DRG, Table 8., FAMC has reduced the LOS to within 8.3 days of HCFA's LOS mean. This is still an excellent DRG to target UM efforts.

EACH's LOS means compare very favorably with the civilian sector. This suggests that EACH's UM efforts in decreasing its LOSs are working.

By examining FAMC's and EACH's nine most frequent DRGs against HCFA's LOS data, Tables 6 - 11, similar results are seen as with the CMIs' LOS means, Tables 12 - 17. Table 18 summarizes FAMC's and EACH's performance against the HCFA's LOS means. Although FAMC still exceeds HCFA's LOS means, improvement has been made in the most frequent DRGs. FAMC continues to increase its CMI

DRG's LOSs over the HCFA's means. By focusing on those DRGs which significantly exceed the HCFA's LOS parameters, the UM results are maximized. EACH again compares favorably against the civilian sector and shows steady improvement.

As mentioned earlier, the inclusion of Active Duty data in the comparisons, lengthens FAMC and EACH's LOS means due to special military requirements. In the JCAHO Accreditation Manual under the Governing Body 1.16, it states "The governing body requires mechanisms to assure the provision of one level of patient care in the hospital" (JCAHO, 1993). This means that all patients with the same health problem are to receive the same level of care. The differences in managing Active Duty health care should be minimized for two reasons. First, it is a JCAHO requirement. Second and more important, FAMC and EACH are resourced on a capitated basis by the number of beneficiaries in their catchment area. The old traditional philosophy of keeping Active Duty patients longer, just for the sake of it, is not cost effective. Both FAMC and EACH are taking measures to treat AD patients equally and expeditiously.

FAMC's and EACH's UM personnel realize that the employment of only one UM method will not yield maximum results. For example, in a seven- year study on the effects of preadmission review before hospitalization revealed that there is no effect on the length of stay once patients were admitted (Grable, 1989). Other UM tools such as concurrent review, case management, etc., are required in order to have an integrated UM program.

The civilian and military health care sectors experience problems in modifying physicians' behavior. For the civilian sector, the physicians practice independently from the hospitals so there is very little direct influence that the hospital can apply on them. Hospitals need physicians to admit to their facilities. Physicians view hospitals as their workshops where they can generate revenue. It is commonplace for physicians to have admitting privileges at several hospitals so they are not necessarily loyal to one particular hospital. Hospitals offer incentives for physicians to use their facilities. Hospitals desire more control over the physicians but they realize that trying to influence physicians' behavior is a very sensitive issue and is very difficult to accomplish.

Kaiser has more control over the physicians for several reasons. First, Kaiser is very particular on the physicians they allow in their network. Prescribing and practicing patterns are scrutinized and those physicians with proven cost conscious behavior are accepted. This screening and granting of privileges is commonly known as economic credentialing. The second control that Kaiser asserts over its physicians is the withdrawal of privileges from physicians who become too costly in practicing medicine. The third Kaiser control which has the most impact is the financial incentive for its physicians. After a period of probation where physicians have demonstrated proven cost and quality behavior, they become eligible to participate in a profit-sharing plan with Kaiser. The financial incentive appears to be the important factor in influencing Kaiser's physicians' behavior.

Military hospitals face unique challenges in influencing their physicians' practice behavior. Since military physicians are assigned to the hospital and are a part of the hospital's organization structure, there is theoretically more control on their behavior.

Although military physicians are part of the hospital's hierarchy, they exhibit much of the same autonomous behavior as their civilian counterparts.

Financial incentives do not apply to military physicians. Although they receive bonuses according to their specialties, military physicians are salaried and are not financially rewarded for their cost conscious performance. This inability to use financial incentives presents a challenge for military health care administrators to motivate and influence physicians' behavior.

Military health care administrators are also confronted with the dilemma of using contract and/or partnership physicians to supplement their military staff. These contract/partnership physicians are paid on a fee-for-service basis. Depending upon the medical specialty and the number patients seen/treated, these contract/partnership physicians can earn more money than the military physicians. This can cause morale problems among the military physicians. Additionally, it is difficult to control the prescribing and practicing behavior of these nonsalaried physicians.

Due to budget decrements, this problem may be lessened as fewer partnership agreements are established or renewed.

It is unrealistic to expect the military hospitals to instantly change their health care delivery system to adopt the new resourcing methods. It takes time to change the organizational culture and to modify behavior. For example, even at Parkview Episcopal Medical Center, Pueblo, CO., which has earned national recognition for successfully implementing CQI is just now involving physicians in CQI. This feat is considered a major accomplishment and has taken approximately five years. The organizational culture change at Parkview has been a very slow process in spite of the excellent leadership of the Chief Executive Officer, Michael Pugh.

V. Conclusions and Recommendations

Conclusions.

The civilian organizations visited, appeared to have more effective utilization management programs. These organizations have been operating in the business environment and under strict Federal regulation for a longer period of time and have more experienced UM personnel.

The civilian sector also seemed to have better medical information systems and to be more sensitive to the importance of managerial cost information. Civilian cost data is reported to outside agencies and becomes public knowledge. Since this cost data is made public, patients, employers, insurance companies, etc., are aware of the costs and can determine which health care organizations provide the best value for their health care dollars. The survival of health care organizations depends upon their ability to deliver quality health care at an affordable price for the value. Cost information on military hospitals has not been as closely scrutinized as the civilian sector. Also, since the costs are calculated differently, it is difficult to compare military health care costs with the civilian health care sector.

Military hospitals can learn from our civilian counterparts and adopt some of their UM practices to military medicine. The learning curve on how to effectively conduct UM can be accelerated by taking advantage of our civilian counterparts' experience.

EACH has a more effective utilization management program than FAMC. This is attributed primarily to its three year experience as a CAM demonstration site. Both FAMC and EACH have significantly improved their UM programs and are taking appropriate actions to continue their UM programs.

Military health care professionals have and are adapting to the new demands of decreasing budgets, closer scrutiny of practice patterns, etc. There will be resistance to change and decreased satisfaction with practicing medicine in this cost containment environment.

Recommendations.

Recommendations Applicable to FAMC and EACH.

FAMC and EACH should continue to improve their hospitals' UM Programs. Although the preadmission services will reduce inappropriate admissions and improve the management of the patients, the continual use and emphasis of an integrated program based on concurrent review, case management, and discharge planning is recommended. All of the departments in the hospitals should be encouraged to contribute to the UM effort.

Recommend that the philosophy to actively manage Active Duty patients the same as all other patients should be emphasized. Although Active Duty patients

have been and will continue to be managed differently due to military requirements, this distinct management should be kept to a minimum in order to achieve maximum effectiveness within the entire hospital's UM Program. This will require continuous education of the clinical staff.

Outcome studies should be conducted to ensure that the quality of care has not been compromised due to the UM initiatives. This is essential for two reasons. First, JCAHO requires all services to monitor and to evaluate the quality of care. The second reason may be more important than the JCAHO requirement. Health care providers are genuinely concerned about their patients' health and welfare. Unless there is evidence that patient care is not being compromised, health care providers may not fully support UM initiatives.

Since this project approached UM efforts at the macro-level, recommend that further studies be conducted at the micro-level. These studies should include the use of critical pathways.

The Orthopedic Services within Colorado should conduct aggressive teaching programs for the Primary Care Providers and establish a "Bone Phone" for the PCPs to utilize. Additionally, the Orthopedic Services should coordinate more closely in order to optimize the use of orthopedic resources.

Recommendations Specifically for FAMC.

FAMC should better staff and energize its present Coordinated Care Division. Recommend that the Chief's position be civilianized. This will become more critical with the downsizing of the military and the likelihood of more frequent reassignments of officers serving as Chiefs, CCD. By having a civilian Chief, CCD, institutional knowledge and continuity can be preserved.

Recommend that the UR Coordinator from the Quality Improvement/Risk Management Office be transferred to CCD. This reassignment will allow UM efforts to be more focused and will complement CCD's efforts to reduce costs via better health care coordination.

Further recommend that one of the two nurses, designated to be CCD Advise Nurses, be incorporated into the Preadmission Service. All orthopedic referrals from the region would be channeled to this office for the triaging, scheduling, and coordinating of the ambulatory appointments. This individual would also serve as the central point for all aeromedical orthopedic ambulatory appointments and admissions arriving via the air evacuation system. By establishing this single entry point for regional orthopedic referrals and the aeromedical evacuations, the referral process from the supported military

medical hospitals will be less confusing and time-consuming. Additionally, the medical management of the referred patients will be more appropriate, the scheduling process will be streamlined, and the coordination of the patients' visits will be consistent and more efficient.

For example, the Advice Nurse would emphasize the importance of increasing the patient's strength via physical therapy prior to scheduling the total joint replacement operation. Scheduled total joint replacement patients from outside the Denver metro area would receive physical therapy at their primary military hospital prior to coming to FAMC for their surgery. By following this protocol, the following benefits are achieved: the patient's LOS will be shorter so the patient can return home sooner; FAMC's health care costs will be reduced; and the referring military hospital will have a vested interest in the patient. This also eliminates the shifting of the referring military hospital's health care responsibilities and related costs to FAMC which may be increased due to capitated budgeting. Additionally, a patient-health care relationship with the referring hospital will have already been established for follow-up rehab and PT.

This concept of centrally managing all specialty referrals and aeromedical requests can also be applied to all of FAMC's specialty services. Protocols should be utilized, so the referring military hospitals will know exactly what laboratory and radiology tests should have been performed, and what other special procedures or medical documents are required by the specialty services. By adopting this streamlined system, the following benefits should be realized: improved access; improved utilization of specialty physicians whose morale will improve; increased patient satisfaction due to better service; reduced cost-shifting from the referring military hospitals; and reduced FAMC's costs as a tertiary hospital.

To oversee this centralized, coordinated system for the region, recommend that a civilian be designated as the Regional Care Coordinator. This Regional Care Coordinator would also serve as the single point for arranging and providing health care assistance to the supported military hospitals. This would eliminate the present confusing, inconsistent request process. Presently, requests can be initially received by one of the following areas: the Directorate of Plans, Training, Mobilization, and Security; the Clinical Support Division; the Office of the Deputy Commander for Clinical Services; the requested specialty service

or even by the requested health care professional. Centralized negotiating expertise should also be made available to the supported military hospitals.

The UR Coordinator should also be utilized in the regional Coordinated Care Office. Since FAMC just received the regional Army hospitals data (PASBA II database), the UR Coordinator will be able to analyze the LOS data against HCFA and CHAMPUS LOS means. Regional studies should be conducted and recommendations on what areas to target for cost savings could be made. Additionally, the UR Coordinator could serve as a facilitator for the Regional Coordinator and supported military hospitals in obtaining CHAMPUS data from OCHAMPUS since it located on FAMC's installation. This service will improve the availability of regional health care data and expedite the data collection process.

If the above recommendations are implemented for an integrated UM Program, the below objectives should be realized:

- a. Contain orthopedic costs (Direct care and CHAMPUS).
- b. Improve beneficiary access to orthopedic care.
- c. Ensure quality orthopedic care.

d. Ensure that orthopedic resources within the Colorado Springs Health Service Area, an overlapping catchment area, where several community hospitals and numerous partnership arrangements exist, are efficiently utilized.

e. Ensure a solid referral base of patients is provided for FAMC's orthopedic GME program.

f. Provide an example of an integrated UM Program that could can be adopted by other FAMC Services within DoD Region III and the Fitzsimons Health Service Region.

VI. References

- Avellar, J. and Klein, D. (1989). Getting your Money's Worth from UR. Business and Health. 12, 40-44.
- Bailit, H. L., and Sennett, C. (1991). Utilization Management as a Cost-Containment Strategy. Health Care Financing Review Annual Supplement. 87-93.
- Beck, D. F., (1989). Basic Hospital Financial Management. Rockville, Maryland: Aspen Publishers, Inc. 174.
- Becker, R.J., (1990). Managed Care is Utilization Review. American Journal of Hospital Pharmacy. 47, 2274-2276.
- Bittle, L. (1990). Quality Management: The Infrastructure for Quality Assurance. Quality Assurance in Hospitals. Gaithersburg, MD: Aspen Publishers, Inc.
- Boland, P. (1991). Making Managed Healthcare Work: A Practical Guide to Strategies and Solutions. Berkeley, CA: McGraw-Hill Inc.
- Creps, L. B., Coffey, R. J., Warner, P. A., & McClatchey, K. D. (1992). Integrating Total Quality Management and Quality Assurance at the University of Michigan Medical Center. ORB. Aug. 250-258.

- Demlo, L. K. (1983). Assuring Quality of Health Care: An Overview. Evaluation & the Health Professions, 2, 161-196.
- Dorwart, R. A. (1991). The Second Generation of Quality Review. ORB. Oct. p. 330.
- Goldberg, A. J., Buttaro, R. A., Hospital Departmental Profiles. American Hospital Publishing Inc. 182.
- Grable, H. 1989. The Effect of Precertification on the Rate of Hospitalization of Patients with Low Back Pain. American College of Utilization Review Physicians. 4, 101-107.
- Harper, A. J. and Konrad, D. J. (1992). Developing a Utilization Improvement Program. The NAHAM Management Journal. 4, 24-25.
- Harris, J.S. and Custer, W.S. (1991). Health Care Economic Factors and the Effects of Benefits Plan Design Changes. Journal of Occupation Medicine. 3, 279-286.
- James, B. C., (1989). Quality Management for Health Care Delivery. Quality Management and Management Project.
- Kemper, K. J. (1988). Medically Inappropriate Hospital Use in a Pediatric Population. The New England Journal of Medicine. 16, 1033-1037.

- Kirk, R. (1988). Healthcare Quality & Productivity: Practical Management Tools. Rockville: Aspen.
- Liebler, J. G., Levine, R. E., Rothman, J. (1992). Management Principles for Health Professionals. Gaithersburg, Maryland: Aspen Publishers, Inc.
- Little, J. C. and Austing, R. H. (1977). Some Guidelines for the Analysis and Design of a Computerized Utilization Review and Reporting System. Medical Records News. 6, 6-20.
- Longo, D. R., Ciccone, K. R., and Lord, J. T. (1989). Integrated Quality Assessment: A Model for Concurrent Review. American Hospital Publishing.
- Longo, D. R. and Bohr, D. (1991). Quantitative Methods in Quality Management: A Guide for Practitioners. American Hospital Association.
- MacDonald, J., Dutton, M., Stott, D., and Hamblen, D. (1992). Evaluation of Pre-Admission Screening of Elderly Patients Accepted for Major Joint Replacement. Health Bulletin. 1, 54-60.
- McMahon, L. F. (1984). Diagnosis-Related Group Prospective Payment: Effects on Medical Quality Assurance. Evaluation & The Health Professions. 1, 25-41.
- McNulty, E. (1991). Case Management: A Case in Point. Discharge Planning Update. 2, 14-15.

- Meisenheimer, C. G. (1992). Improving Quality: A Guide to Effective Programs. Gaithersburg, MD: Aspen.
- Miller, J. B., Rose, M. S., Milakovich, M. and Rosasco, E. J. (1992). Application of TQM Principles to the Utilization Management Process. Physician Executive, 18, 9-14.
- Newmark, G. L. (1976). Can Quality be Equated With Cost? Hospitals. 50, 81-86.
- Noon, B. (1992). Ambulatory Surgery: Integrating the Preadmission Program. Nursing Management. 7, 112A, 112D, 112H.
- O'Hare, P. A., and Terry, M. A. (1988). Discharge Planning: Strategies for Assuring Continuity of Care. Rockville: Aspen.
- Optenberg, S., Coventry, J., and Baker, S. (1990). A Specialty-Based Ambulatory Workload Classification System. Journal Ambulatory Care Manage. 3, 29-38.
- Payne, S. M. C. (1987). Identifying and Managing Inappropriate Hospital Utilization: A Policy Synthesis. Health Services Research. 5, 709-769.
- Raab, D. (1992). Psychiatric Specialty Hospitals: Six Tactics for Surviving Managed Care. Health Systems Review. 2, 56-58.

- Relman, A. S. (1990). The Trouble with Rationing. New England Journal of Medicine. 323, 911-913.
- Rogers, E. and Blamey, K. (1984). DRGs and Utilization Review: Do They Work? Topics in Health Record Management. 3, 88-98.
- Scheffler, R.M., Sullivan, S.D., and Ko, T.K. (1991). The Impact of Blue Cross and Blue Shield Utilization Management Programs, 1980-1988. Inquiry. 28, 263-275.
- Shockney, L. (1992). The Financial Benefits of an Effective Hospital Wide Quality Assurance/Utilization Management Program. ORB. 8, 259-265.
- Shortell, S. M., Morrison, E. M., Friedman, B. (1990). Strategic Choices for America's Hospitals. San Francisco: Jossey-Bass Inc., Publishers
- Steiner, J. W., Root, J. M., and White, D. C. (1991). Laboratory Cost and Utilization Containment. Clinical Laboratory Management Review. 5, 373-374.
- Wechsler, J. (1992). Next Four Years: A Potential Bonanza for Managed Care. Managed Healthcare. 3, 1, 16-18.
- Welch, W.P. (1989). Restructuring the Federal Employees Health Benefits Program: The Private Sector Option. Inquiry. 26, 321-334.

- Wenzel, R. P. (1992). Assessing Quality Health Care: Perspectives for Clinicians. Baltimore: Williams & Wilkins.
- Wheeler, J. R. C., Wickizer, T. M. (1990). Relating Health Care Market Characteristics to the Effectiveness of Utilization Review Programs. Inquiry. 4, 344-51.
- Wymelenberg, S. (1978). Aggressive Utilization Review Shortens Stays, Lowers Costs. Hospitals. 52, 75-78.
- Zusman, J. (1990). Guidelines for the Practice of Utilization Review: Essential but Lacking. ORB. Apr. 143-148.
- Zusman, J. (1990). Utilization Review: Theory, Practice, and Issues. Hospital and Community Psychiatry, 5, 531-536.
- Accreditation Manual for Hospitals, Joint Commission on Accreditation of Healthcare Organizations, 1992.
- 1991 Hospital Charges for the Most Common Reasons for Hospitalization, August 1992. Colorado Hospital Association.
- Defense of Defense 6010.8-R CHAMPUS POLICY MANUAL, July 1992.
- Memorandum for the Assistant Secretary of Defense for Health Affairs SUBJECT: Effective Implementation of the Coordinated Care Program, 11 June 1992.

Memorandum for Commanders HSC Activities, SUBJECT:

Authority to Approve Partnership Program Agreements,
23 January 1991.

Memorandum for Commanders HSC Activities, SUBJECT:

Fiscal Year (FY) 1993-1995 Budget Outlook, 13 August
1992.

Memorandum for Commanders, HSC Activities, SUBJECT:

Fiscal Year (FY) 1993 Budget Markup--Capitated
Sites, 30 September 1992.

Army Regulation 40-3, (1985). Medical, Dental, and
Veterinary Care.

Army Regulation 40-68, (1989). Quality Assurance
Administration.

Army Regulation 40-330, (1988). Rate Codes, Expense and
Performance Reporting Systems, Centralized
Billing, and Medical Services Accounts.

U.S. Army Health Services Command, Memorandum SUBJECT:

Sample Utilization Management Plan to GATEWAY TO
CARE, 15 October 1991.

U.S. Army Health Services Command, Memorandum SUBJECT:

Fiscal Year (FY) 1994 Initial Operation and
Maintenance, Defense (OMD) Funding Guidance,
11 February 1993.

FAMC Pamphlet 15-1. (1991). Committee Management
Program.

Fitzsimons Army Medical Center Gateway to Care

Implementation and Business Plan, FY 93

Fitzsimons Army Medical Center 1992 Hospital Quality

Improvement Plan (QIPP).

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Appendix A. Definitions

| | |
|----------|---|
| AD: | Active Duty. |
| AEP: | Appropriateness of Evaluation Protocol. |
| ALOS: | Average Length of Stay. |
| AMEDD: | Army Medical Department. |
| AR: | Army Regulation. |
| AWUS: | Ambulatory Work Units. |
| CAM: | Catchment Area Management. |
| CC: | Complication. |
| CCD: | Coordinated Care Division. |
| CCP: | Coordinated Care Program. |
| CG: | Commanding General. |
| CHAMPUS: | Civilian Health and Medical Program of the Uniformed Services. |
| CMI: | Case Mix Index. |
| CMIS: | CHAMPUS Information System. |
| CQI: | Continuous Quality Improvement. |
| DoD: | Department of Defense. |
| DRG: | Diagnosis-Related Group. |
| EACH: | Evans Army Community Hospital. |
| FAMC: | Fitzsimons Army Medical Center. |
| FY: | Fiscal Year. |

GME: Graduate Medical Education.

GTC: Gateway to Care.

HCFA: Health Care Financing Administration.

HMO: Health Maintenance Organization.

HSC: Health Services Command.

JCAHO: Joint Commission on Accreditation of
Healthcare Organizations.

LOS: Length of Stay.

LPN: Licensed Practical Nurse.

MCCU: Medical Composite Care Unit.

MDC: Major Diagnostic Category.

MEPRS: Medical Expense and Performance Report
System.

MHSS: Military Health Services System.

MRI: Magnetic Resonance Imaging.

NAS: NonAvailability Statement.

OCHAMPUS: Office of Civilian Health and Medical Program
of the Uniformed Services.

PASBA: Patient Administration Systems and
BioStatistics Activities.

PCP: Primary Care Provider

PPC: Professional Practice Commission.

| | |
|-------|---|
| PL: | Public Law. |
| PPO: | Preferred Provider Organization. |
| PRO: | Peer Review Organization. |
| PSRO: | Professional Standards Review Organization. |
| PT: | Physical Therapy. |
| QA: | Quality Assurance. |
| RN: | Registered Nurse. |
| SDS: | Same Day Surgery. |
| UM: | Utilization Management. |
| UR: | Utilization Review. |